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Maine Agricultural Experiment Station

ORONO

BULLETIN No. 180. **JUNE 1910**

THE FUNGUS GNATS OF NORTH AMERICA.
Part II

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BULLETIN No. 180.

THE MYCETOPHILIDÆ OF NORTH AMERICA.

PART II.*

THE SCIOPHILINÆ.

O. A. JOHANNSEN.

The classification which I adopted in *Genera Insectorum* is followed in this paper; the only exception being that *Neoempheria* is here restored to generic rank. To avoid confusion it may be well to state that *Lasiosoma* Winnertz of earlier writers is replaced by *Sciophila* (Meigen, part, not Winnertz) and *Sciophila* (*in sensu* Winnertz) by *Mycomya* Rondani. In the study of the members of this family alcoholic material is much to be preferred to pinned specimens. Slide mounts are also very useful though the ocelli and the parts of the hypopygium are not so readily discernible.

The subfamily *Sciophilinæ* is a compact and easily recognizable group characterized by the presence of a small closed cell (R_1) not far from the middle of the wing (figs. 83-106). The M-Cu crossvein is absent, R_{2+3} is distinct, short, usually nearly transverse, crossvein-like, and bounds distally the small cell R_1. The ocelli, two or three in number, are remote from the eye margin, except in the genus *Eudicrana*. The hypopygia are complex, diverse in structure and frequently small and inconspicuous.

Habits and Early Stages.

Comparatively little is known of the habits of the *Sciophilinæ*. In the paper on "Characters of the larvæ of Mycetophilidæ" by Osten Sacken, is given all that is known concerning the early

*Papers from the Maine Agricultural Experiment, Entomology No. 42. Part I was published in Bulletin No. 172. Where the types of the new species are to be found will be stated in Part III, now in preparation.

stages of the members of this subfamily. He states that the larvæ of *Sciophila* are easily distinguished from those of *Mycetophila* by their more elongate form and their mode of life, as they do not burrow inside of the fungi, but live on the surface, generally on the under side of the pileus, which they cover with a web. Some of them are found on decaying wood, especially when it is covered with *byssus*. The head of the larva is more elongate than in the *Mycetophilinæ;* the antennæ are rudimentary; mandibles uniformly thin, slightly concave, with several large indentions and some minute ones in their intervals and on the surface; maxillæ well developed and apparently with a vestigial palpus. The body is 12-segmented, subcylindrical, elongated, almost serpentine, yellowish in color with 8 transverse rows of exceedingly minute ambulacral setulæ on the ventral side of abdomen. The stigmatæ are small, 8 pairs, one on the first thoracic and seven on the first 7 abdominal segments, the last two having none.

Winnertz records rearing *Neoempheria, Empalia* and *Mycomya* from decaying Beech wood, the last also from the fungi *Daedalea quercina,* and *Polyporus; Sciophilæ* (*Lasiosoma*) were obtained from the fungi *Hydnum repandum, Boletus scaber,* and *Daedalea quercina.*

Table of Genera.

a. Cubitus not forked (fig. 84); forceps slender (fig. 107). 1. *Monoclona.*

aa. Cubitus forked.

b. Two ocelli, one near each eye margin; petiole of cubitus very short (fig. 83). 2. *Eudicrana.*

bb. When only two ocelli are present these closely approximated and widely remote from eye margin; frequently with three ocelli.

c. The R-M crossvein long and oblique, appearing like the beginning of a longitudinal vein and much longer than the small transverse basal section of the radial sector (fig. 85). 3. *Tetragoneura.*

cc. The crossvein shorter or not much longer than the base of the radial sector.

d. The media forks slightly distad of the crossvein but proximad of the fork of the cubitus (fig. 86). (*Lasiosoma* Winn). 4 *Sciophila.*

dd. The media forks at least the length of the crossvein beyond the latter and distad of the fork of the cubitus.

e. Ocelli widely separated, the middle one distinct and but little if any smaller than the laterals.

f. The subcostal crossvein placed noticeably proximad of the cell R_1 which is three or more times as long as broad, *and* the subcosta ends in the costa; conspicuour hairs on the wing among the setulæ (fig. 87).

5. *Paratinia.*

ff. Not with the above combination of characters.

g. R_{4+5} much curved and often undulate, cell R_1 usually shorter than broad, subcosta ends either free or in the costa beyond the cell R_1 (figs. 88-90).

6. *Polylepta.*

gg. R_{4+5} straight or gently arched; the cell R_1 as long or longer than broad (except in *Empalia*).

h. Subcostal crossvein is proximad of the small cell R_1 which is shorter than broad (fig. 91); apex of subcosta may be obliterated. 7. *Empalia.*

hh. Subcostal crossvein, when present, is placed on the cell R_1.

i. Subcostal vein ends in R_1; small cell usually more than twice as long as broad; petiole of the cubitus rather short; middle femur of male without a stout spine at apex.

j. Proboscis prolonged, snout-like (fig. 61, pt. 1); anterior veins unusually heavy (fig. 93).

8. *Hadroneura.*

jj. Proboscis not prolonged; anterior veins only moderately thickened (fig. 92).

9. *Dziedzickia.*

ii. Subcostal vein ends in the costa, small cell less than twice as long as broad; wing with markings (fig. 94); apex of middle femur of male with a stout spine. 10. *Diomonus.*

ee. Ocelli close together, the middle one if present very minute.

f. Wing with bands or markings; costa usually produced beyond the tip of R_{4+5}; wing usually with a longi-

tudinal fold between radius and media (figs. 95 to 100); eyes usually not emarginate.

11. *Neoempheria.*

ff. Wing hyaline, without dark fasciæ or spots; costa usually meets R_{4+5} at tip of wing (figs. 101-106); eyes usually emarginate at base of antennæ; *Sciophila* Winn). 12. *Mycomya.*

1. Genus *Monoclona* Mik.

Monoclona, Mik, Wien. Ent. Zeit. V. 279 (15) (1886).
Stægeria, Van der Wulp, Tijdschr. v. Ent. XIX. versl. 49 (1876)

Resembles *Sciophila* (*Lasiosoma*) but differs mainly in having a simple cubitus. Head small, flattened above; eyes oval, slightly emarginate at base of the antennæ; ocelli three, placed high upon the front, widely separated, the middle one but little smaller than the laterals; antennæ projecting forward, arcuated, 2+14 jointed, the basal joints differentiated, cupuliform, the flagellar joints rounded, short haired; palpi incurved, four jointed, apical joint longest, cylindrical. Thorax highly arched, with bristle-like hairs. Abdomen slightly constricted at the base, with seven visible segments, in the male cylindrical, in the female slightly depressed. Legs moderately long, the tibiæ with fine lateral setæ and long spurs; the fore tarsi twice as long as the tibiæ. Halteres large and with elongate knobs. Wings hairy (fig. 84),broad, longer than the abdomen; costa produced beyond the tip of R_{4+5}; subcosta ends in the costa far distad of the small cell R_1, this cell short, R-M crossvein a little longer than its distance from the fork of the media; Sc_2 (subcostal crossvein) a little proximad of the small cell; cubitus simple. The genitalia of the male rather slender and elongate, the lateral lobes prolonged, and curved forceps-like (fig. 107).

Monoclona elegantula n. sp.

Male and female. Length 3 mm. Head black, palpi, face, scape of antenna, and the two basal joints of flagellum yellow, the remaining flagellar joints fuscous. Thorax yellow, the mesonotum variable, in one specimen with three confluent blackish stripes, in the others with the lateral stripes dark, the middle one only faintly indicated. In the darkest specimens the scutellum and metanotum are infuscated, in the others these parts are yellow; hairs pale. Each intermediate abdominal segment

yellow with a broad brown fascia which in the darkest specimen covers all but very narrow incisures; in the paler specimens the yellow predominates; the last two or three segments in all the specimens wholly dark brown; venter yellow; hypopygium (fig. 107) dark brown, ovipositor yellow. Legs yellow, tarsi somewhat darker, foremetatarsus eight-tenths, the second fore tarsal joint half as long as the tibia; tarsal claws each with a tooth at the base, empodium prominent, brush-like. Wings (fig. 84) yellowish hyaline, veins dusky yellow; the small cell shorter than wide, trapezoidal, wider on anterior margin, in this respect differing from *M. halterata*. Stem of the halteres yellow, the elongate knob black. In one wing of one specimen R_{2+3} is wanting, thus making a venation exactly like that of *Acnemia*.

Four males and one female taken in August, Ithaca, N. Y. See page 187 for an additional species.

2. Genus *Eudicrana* Loew.

Eudicrana, Loew, Berl. Ent. Zeitschr. XIII, 142. 1869.

Lateral ocelli contiguous to the eye margin, the middle ocellus absent. Legs slender; tibial setæ moderate; spurs long. Wings (fig. 83) large, of moderate width and rather hairy; costa produced beyond the tip of R_{4+5}; subcostal vein ends in the costa; subcostal crossvein present; basal cell R rather short; cell R_1 elongate; cells in the forks of media and cubitus very long, acuminate at the base, the fork of the latter proximad of the R-M crossvein; second anal strong, long, but not reaching margin of the wing.

Eudicrana obumbrata Loew.

1869. *obrumbrata,* Loew, Berl. Ent. Zeitschr. XIII. 141.

Female. Length 6 mm., wing 5 mm. Head fuscous-black, lower half of the face, cheeks and palpi pale yellow. Scape of antenna yellow, the flagellum fuscous-black. Mesonotum, scutellum and metanotum yellow, with the longer and stronger setæ black, the pile, fuscous. Pleura pale yellowish, near the coxæ mottled with black. The first two abdominal segments and the last, black; the remainder maculate with black; ovipositor short, yellow. Coxæ pale yellow, the heavier pile black, the delicate pile, pale. Legs pale yellowish, the tibial spurs and the tarsi fuscous. Wings subcinereous, the apex and the pos-

terior margin with cinereous cloud; subcosta ends in the costa a little proximad of the apex of cell R_1; the petiole of the media shorter than this cell; base of the fork of the cubitus under the center of the R-M crossvein. Halteres pale. Recorded from New York.

Male. Length 8½mm., wing 6 mm. Face wholly yellow, pile of face and eyes yellow, mesonotum with three broad pale brown stripes, covered with fine yellow pile, setæ of humeri and at the base of the wing black; setæ on lateral margins fuscous; dorsal surface of scutellum and metanotum infuscated, setæ of the former short, the latter with an irregular transverse row of long black ones over the base of the abdomen; setæ of posterior part of pleura, long, fine, and pale yellow. The basal half or two-thirds of the second, third, fourth and fifth abdominal segments and the hypopygium (fig. 111) yellow, the remaining parts black, setulæ black on the black parts and yellow elsewhere. Tibial setæ longer than the diameter of the tibiæ, black, and arranged in about four longitudinal rows; one spur on each fore tibia; two on each of middle and hind tibiæ; fore metatarsus one and three-eighths, the second fore tarsal joint two-thirds as long as the tibia; all claws with two teeth each. Brownish cloud covers the apical fourth of the wing (fig. 83); subcosta ends very slightly distad of the cell R_1. In other respects like the female. One specimen collected by Mr. C. W. Johnson at Capens, Maine, in July.

3. Genus *Tetragoneura* Winnertz.

Tetragoneura, Winnertz, Stett. Ent. Zeit. VII. 18. 1846.

Head spherical, flattened in front, placed low upon the thorax; eyes circular, bulging; ocelli three in number, placed in a curved line upon the broad front, the middle one smaller than the laterals; palpi incurved, four jointed, the first joint very small, the fourth long, filiform; antennæ arcuated, projected forward, 2+14 jointed, the first two differentiated, both long setose at the apex, the flagellar joints cylindrical, slightly compressed, short pilose. Thorax oval, highly arched; scutellum small, truncated behind, long setose; metanotum highly arched. Abdomen seven segmented, cylindrical in the male, with short forceps (fig. 108); in the female somewhat compressed, terminating in an ovipositor with two lamellæ. Legs moderately long; femora compressed, all tibiæ with lateral setæ. Wing (fig. 85) some-

what longer than the abdomen, microscopically setulose, oval, with more or less rounded base; costa produced far beyond the tip of R_{4+5}, but not quite reaching the tip of the wing; subcosta short or long, ending in the costa, or free, or in R_1; R_1 ending in the costa beyond the middle of the wing; Sc_2 (subcostal crossvein) usually wanting; the small cell (R_1) somewhat elongate, beyond the middle of the wing; the R-M crossvein elongate, very oblique, almost longitudinal in position, appearing like the beginning of a longitudinal vein; petiole of the media moderately long; cubitus forking either near the base of the wing or somewhat distad of this point; anal veins vestigial. The larvæ have been found in rotten wood and in fungi.

Table of Species.

a. Subcosta ends in the costa: a fossil species from Colorado. 1. peritula.

aa. Subcosta does not end in the costa; living species.

b. Subcosta vestigal, ends free (fig. 85) thorax and abdomen shining black. 2. *nitida.*

bb. Subcosta ends in R_1 nearly midway between humeral crossvein and the base of the radial sector.

c. Abdomen yellow; cubitus forks near its base. N. H. 3. *bicolor.*

cc. Abdomen brown, posterior margins of second and following segments yellow; cubitus forks at a point nearly opposite the proximal end of the R-M crossvein. Pa. 4. *pimpla.*

1. *Tetragoneura peritula* Cockerell.

1909. *peritula,* Cockerell, Amer. Jour. Science XXVII, 53.

A fossil species from the Florissant, Colorado.

2. *Tetragoneura nitida* Adams.

1903. *nitida,* Adams, Kan. Univ. Science Bul. II. 23.

Female. Length 2.7 mm. Black, shining; head black, front bearing yellow pile, antennæ dark brown, first two joints and palpi yellowish; mesonotum black, shining, pile yellow, bristles on margins black, scutellum black, bristles yellow, metanotum and pleura black, halteres yellow, abdomen wholly shining black, pile yellow; legs yellow, with tip of hind femora, middle and hind tibiæ and all tarsi brown; wings hyaline, tinged with brown on the anterior part, subcosta short, ending free, the

furcation of the cubitus is nearly opposite to the proximal end of the R-M crossvein. Recorded from Missouri (May).

Male. Wing shown in figure 85. Differs from female only in having yellow and black setæ on the margin of the mesonotum; the trochanters are margined with black. The fore metatarsus is two-thirds, the second fore tarsal joint one-third as long as the tibia; the hypopygium is minute and very inconspicuous (fig. 108). A single specimen from L. Toxaway, N. C.

3. *Tetragoneura bicolor* Coquillett.

1901. *bicolor*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 595.

Female. Length 3.5 mm. Head black, first two joints of antennæ and the mouth parts yellow, remainder of antennæ dark brown; thorax and scutellum black, somewhat polished, the hairs reddish brown and black; abdomen yellow, its hairs also yellow; halteres, coxæ, femora, and tibiæ yellow, apices of tarsi brownish yellow; wings hyaline, subcostal vein ending in R_1 about midway between the humeral crossvein and base of the radial sector; cubitus forking close to its base; length 3.5 mm. N. H.

4. *Tetragoneura pimpla* Coquillett.

1901. *pimpla*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 595.

Female. Length 4.5 mm. Head black, base of antennæ and mouth parts yellow; body brown, two indistinct vittæ and lateral margins of mesonotum, a spot above front coxæ, posterior margins of second and following abdominal segments, and the the genitalia, yellow; hairs and bristles of thorax black, those of abdomen chiefly yellowish brown; coxæ and femora yellow, tibiæ and tarsi brownish yellow, halteres yellow; wings grayish hyaline, the subcostal vein ends in R_1 nearly midway between the humeral crossvein and base of the radial sector, cubitus forks near its middle, at a point almost opposite the union of the small crossvein with the media. Pennsylvania.

4. Genus *Sciophila* Meigen.

Sciophila, Meigen, Syst. Beschr. I. 245. 1818.

Sciophila, Rondani, (nec Winnertz), Dipt. Ital. Prodr. I. 104. 1856.

Lasiosoma, Winnertz, Verh. Zool-bot. Ges. Wien. XIII. 748. 1863.

The name *Sciophila* is used here in the sense of Rondani (1856) and includes all the species classified by Winnertz (1863) in the genus *Lasisoma,* the latter thus becoming a synonym of the former. The species which Winnertz placed in *Sciophila* are transferred to *Mycomya,* Rondani, where they rightfully belong.

Head small, spherical, flattened in front, placed low upon the thorax; eyes oval, slightly emarginate at the base of the antennæ, almost reniform; ocelli three in number, arranged in a flattened triangle upon the broad front or more rarely upon the vertex, the middle one only slightly smaller than the laterals; palpi incurved, four jointed, the first joint very small, the second and third subequal, the last longer than the others taken together; antennæ projecting forward, arcuated, somewhat compressed, 2+14 jointed, the two basal joints cupuliform, hairy. Thorax oval, highly arched mesonotum long and thickly haired, not setose; scutellum very small; halteres with short petiole and elongate knob. Abdomen with seven visible segments, cylindrical, somewhat constricted at the base, hairy, in the male with blunt extremity and small forceps (fig. 110, 117). Legs moderately long; the tarsi of the fore legs double the length or rarely more than double the length of the tibiæ. The tibiæ with spurs and with lateral setæ, the fore pair with one or two, the middle pair with three and the hind pair with four rows, the inner row with only few and weak setæ. Wings elongate oval, with rounded base, longer than the abdomen, hairy, hairs sometimes visible with the naked eye. The costa produced far beyond the tip of R_{4+5}, but not reaching the tip of the wing; the subcosta usually extends distad of the small cell and ends in the costa; the cell R_1 very small and usually rectangular; the media forks at or but very little distad of the R-M crossvein; the cubitus forks noticeably distad of the fork of the media; the anal vein incomplete, ending far from the margin of the wing (fig. 86).

These flies are prevalent in Spring and Fall; the larvæ live in rotten wood and in fungi.

Table of Species.

a. Wing 2.40 (or less) times as long as the fore tibia: yellow species.

b. Halteres luteous: subcosta ends at least the length of the crossvein beyond the latter; female.

11. *similis* n. sp.

bb. Halteres with black knob: inferior forceps of hypopygium (fig. 110) with very short, stout, blunt spines, no palmate spines (compare 12 *fasciata* Say).

c. Subcostal crossvein at distal end of small cell.

2. *glabana* n. sp.

cc. Subcostal crossvein near middle of small cell.

d. Small cell (R_1) about one and one-half times as long as wide.

2a. *glabana;* var. *germana,* n. var.

dd. Small cell about twice as long as wide; subcosta ends less than the length of the small cell beyond the latter.

2b. *glabana;* var. *socia,* n. var.

aa. Wing 2.75 (or more) times as long as the fore tibia.

b. Small species 2.75 mm. in length: thorax yellow, with three blackish stripes continent posteriorly, abdominal segments fasciate; inferior forceps lobular, apically with a number of long setæ, convex basal part with palmate spines (fig. 115).

3. *nugax* n. sp.

bb. Larger species, over three mm. long: inferior forceps with two long blunt spines directed mesad (fig. 117).

c. Thorax mainly yellow, dorsum sometimes with faint indications of fuscous stripes.

d. Subcostal crossvein inserted at the base of small cell R_1.

e. Dorsal plate of hypopygium produced into a serrate spur, with 3 or 4 long setæ (fig. 109); inferior forceps with 2 long blunt spines on dorsal surface; superior forceps, slender, curved (fig. 109a); abdomen fasciate. 4. *habilis* n. sp.

ee. Dorsal plate of hypopygium slightly emarginate, with 2 long, slightly and sparsely plumose setæ (similar to fig. 117); superior forceps not produced beyond the margin of the dorsal plate; inferior forceps with 3 long blunt spines (similar to fig. 119s); abdomen subfuscous, nearly unicolored. 5. *incallida* n. sp.

dd. Subcostal crossvein inserted at the middle of small cell R_1. 1. *quadratula*.

cc. Thorax mainly dark.

d. Superior forceps curved, large, broadened at the end (fig. 113a), inferior forceps with 2 dorsal spines and 1 very strong ventral, laterally directed spine (fig. 113b). 6. *hebes* n. sp.

dd. Superior forceps hidden; no strong spine on ventral surface of inferior forceps.

e. With 3 blunt spines (s) on dorsal lobe of inferior forceps (fig. 119). 7. *novata* n. sp.

ee. With 2 blunt spines (s) on dorsal lobe of inferior forceps (fig. 116).

f. Margin of dorsal plate of hypopygium with 8 to 10 slightly plumose setæ, sometimes directed inwards; dorsal lobe of inferior forceps with its 2 blunt spines, strongly developed (fig. 116s). Western species. 8. *impar*. n. sp.

ff. Margin of dorsal plate with fewer plumose setæ.

g. Thorax fuscous, pleura brownish; margin of dorsal plate of hypopygium with no plumose setæ. 9. *severa* n. sp.

gg. Pleura blackish; margin of dorsal plate with 2 sparsely plumose setæ (similar to fig. 117s), (compare 13 *hirta* Meigen and *Polylepta grisea* Walker). 10. *pallipes* Say.

Sciophila fasciata Say (12), *Sciophila popocatepetli* Bell. (14), and *Sciophila* (*Lasiosoma*) *hirta* Meigen (13) are not included in the above table. The two former may not even belong to this genus: the latter, reported from Greenland, may be distinguished from *S. pallipes* by its wholly black antenna and scape. *Sciophila grisea* Walker may be a *Polylepta*, though as likely may be a synonym of *S. pallipes* Say. *S. mirandula* Cockerell is a fossil species from Colorado.

1. *Sciophila quadratula* Loew.

1869. *quadratula*, Loew, Berl. Ent. Zeitschr. XIII. 141 (*Lasiosoma*).

Female. Length 3 mm.; wing 2.8 mm. Luteous, clothed with pale pile. Head and flagella of antennæ fuscous black, scape reddish, palpi pale yellowish. Mesonotum not vittate, metathorax more or less fuscous. Abdomen fuscous black, the posterior margin of each segment more or less pale, the apex of abdomen luteous. Legs and coxæ yellowish, the tarsi except the base, fuscous, the more slender veins paler; cell R_1 small, quadrate, the subcostal crossvein placed at the middle; the furcation of the media about opposite the apex of the subcosta. Halteres yellowish. Recorded from Maine. After examining the type I may add that the wing is over three times as long as the fore tibia, the distance from the humeral crossvein to the subcostal crossvein is about 2-3 greater than from the latter to the tip of the subcosta, and that the cubitus forks proximad of the tip of the subcosta.

2. *Sciophila glabana* n. sp.

Male. Length 5.5 mm.; wing 4 mm. Head reddish, infuscated, especially around the ocelli; face, palpi, and scape of the antenna yellow, flagellum fuscous, intermediate joints over 1.5 times as long as wide, ocelli in a transverse line. Thorax yellow, with a minute brown spot at the root of the wing; setæ yellow. Abdominal segments brown with both the anterior and posterior margins yellow; hypopygium shining yellow, the blunt spines of the inferior forceps fuscous; terminal flap of dorsal plate provided with 6 strong marginal and several distal setæ (fig. 122); superior forceps slender, somewhat curved and each limb with a strong terminal seta; the inferior forceps short, ovate, the apex with a number of stout, blunt but short spines

(fig. 110). Coxæ and legs yellow, trochanters with black tips, tarsi subfuscous, empodium bushy; each claw with a single tooth; setæ of fore and middle tibiæ very small, sparse, those of the hind tibiæ on the lateral and extensor surfaces about 6 or 7 in each row, the longest about as long as the diameter of the tibia; fore metatarsus and tibia subequal, the second tarsal joint about 0.6 as long. Wings yellowish hyaline, veins brownish yellow; the distance from the humeral crossvein to the subcostal crossvein 4 times as great as from the latter to the tip of the subcosta; the subcostal crossvein is placed near the distal end of cell R_1, the latter is about 1.5 times as long as wide; petiole of the media is about 0.5 as long as the R-M crossvein; the cubitus forks a very little distad of the tip of the subcosta; anal vein incomplete, but strong. Halteres yellow, with a black knob. Ithaca, New York; Polk Co., Wisconsin.

Var *germana* n. var. In one male from Polk Co., Wisconsin, collected in July by Professor Wheeler, the crossvein is near the middle of the small cell.

Var. *socia* n. var. Several male specimens from Burlington, Vermont, collected in June by Mr. C. W. Johnson, have similar hypopygium, structure and markings, but the small cell is about twice as long as wide; the subcostal crossvein is placed distad of the middle, the tip of the subcosta thus ending but little beyond the distal end of this cell. A female from Boston also belongs here.

Some female specimens from Milwaukee, Wisconsin, do not differ from *Var. germana* except that there are indications of three slender brownish lines on the mesonotum.

3. *Sciophila nugax* n. sp.

Male. Length 2.75 mm.; wing 2.5 mm. Head fuscous, antennæ fuscous apically, basal joints, face, mouth parts and palpi yellow; hairs of head and antennæ yellow, intermediate antennal joints over 1.5 times longer than wide. Thorax yellow, subshining, mesonotum with 3 brownish longitudinal stripes, abbreviated and paler anteriorly, dark, converging and almost meeting posteriorly just in front of scutellum; metanotum brownish, thoracic hairs yellow. Abdomen reddish yellow, median transverse fascia on the intermediate segments black, posterior segments more blackish; hypopygium yellow. Dorsal plate of hypopygium (appendix externa) triangular in outline; apical

angle acute, setose; superior forceps much reduced, claw-like and hidden under the dorsal plate: inferior forceps lobular, apex fleshy with a score of long setæ ranged along the side, three long setæ near the base of this part, the convex part provided with about 20 small palmate spines, the ventral aspect setose (fig. 115). Coxæ yellow, trochanters tipped with black, legs yellow, tarsi slightly darker: fore tibiæ with 3 or 4 very small setæ on flexor surface: middle tibiæ with 3 or 4 on flexor surface, and 4 or 5 both inwardly and outwardly on extensor surface: hind tibia with 3 or 4 on inner lateral surface, 4 on inner extensor surface, about 12 on outer extensor surface in 2 rows, the longest about as long as the diameter of the tibia: empodium bushy: claws each with a single tooth: fore metatarsus and tibia subequal, the second fore tarsal joint half as long. Wings yellowish hyaline, veins yellowish: distance from the subcostal crossvein to the apex of the subcosta is about 0.6 as far as from the humeral to subcostal crossvein: the latter stands on the basal third of the small cell which is slightly longer than broad: the petiole of the media is about as long as the R-M crossvein: the cubitus forks slightly distad of the end of the subcosta; anal vein long, incomplete, delicate. Halteres yellow. **Ithaca, New York, August.**

A defective male specimen from Price Co., Wisconsin, collected in August by Professor Wheeler, probably also belongs

4. *Sciophila habilis* n. sp.

Male. Length 4 mm.; wing 3 mm. Head black, antennæ fuscous, yellow at the base, face, proboscis and palpi dusky yellow to subfuscous, hairs yellow; intermediate antennal joints one and one-half times as long as broad. Thorax wholly yellow with only a small spot at base of metanotum and some small specks on pleural sutures, blackish; hairs yellow. The first and second abdominal segments, the posterior margins of the third and fourth dorsally and basal half of venter yellow, remaining parts including hypopygium black; hairs yellow, mingled with black hairs posteriorly. Hypopygium of the *pallipes* type, the dorsal lobe of the inferior forceps (resembling those of fig. 117) with about 18 palmate spines and 2 blunt dorsal spines, the superior forceps (fig. 100) slender, much curved, the dorsal plate (appendix externa) prolonged into a serrate spur with 3 or 4 strong setæ which are branched (almost pal-

mate) near the tip. Coxæ yellow, trochanters with conspicuous black spot at the tip, legs yellow, tarsi somewhat infuscated. Flexor surface of fore tibiæ with about 8 black setæ; middle tibia with about 6 on the flexor surface, 6 on extensor surface inwardly, and 4 longer ones outwardly, the last nearly as long as the diameter of the tibia; hind legs with 4 on inner lateral surface, 8 on inner extensor surface, about 12 on outer extensor surface in 2 rows, the longest a little longer than the diameter of the tibia; empodium bushy; claws each with a single tooth; fore metatarsus about 0.9, the second tarsal joint about 0.5, the wing about 3 times as long as the tibia. Wings yellowish hyaline, veins dusky yellow; distance from humeral crossvein to the subcostal crossvein about 0.2 greater than the distance from the latter to the tip of the subcosta; small cell nearly rectangular, shorter than wide; the subcostal crossvein inserted at the base of this cell; petiole of the media about as long as the R-M crossvein; cubitus forks slightly distad of the tip of the subcosta; anal vein strong though incomplete. Halteres yellow. Ithaca, New York.

Female. Differs in having paler antennæ; abdomen with markings paler brown and less extensive.

5. *Sciophila incallida* n. sp.

Male. Length 3½ to 4 mm. Yellowish. Thorax pale yellow, mesonotum an infuscated disk with indications of three longitudinal stripes; abdomen nearly unicolored dusky yellow to brownish; legs pale yellow; fore metatarsus 0.9, the wing 3 times as long as the fore tibia; wing venation and hypopygium as in *S. novata,* the hypopygium differing only in having 22 to 24 palmate spines on the dorsal lobe of the forceps. Ithaca, New York.

6. *Sciophila hebes* n. sp.

Male. Length 4 mm. Subshining brownish black, the 2 basal joints of antennæ, coxæ, trochanters, legs and halteres yellow; tips of trochanters and apices of tarsi dusky. Body hairs yellow, setæ of legs black. Intermediate antennal joints about 1.5 times as long as wide. Margin of the dorsal plate of the hypopygium is convex with 4 longer sparsely feathered setæ, besides the usual shorter setæ; superior forceps are much curved, ends broadened, spoon shaped (113a) and without setæ;

each member of the inferior forceps (fig. 113) have the usual pair of mesad projecting spines, the usual pair of dorsal spines, a single very stout ventral, outward projecting spine (b) and a hood surmounted by 40 or 50 palmate spines. Fore tibia with 2 or 3 very small setæ on outer side; middle tibiæ with 4 on outer and 4 on inner extensor surface; hind tibia with 12 to 15 in 3 irregular rows on extensor surface; empodium brush-like; each claw with a single tooth; the second fore tarsal joint about half as long, the fore metatarsus subequal to the tibia in length. Wings hyaline, yellowish tinged, veins yellowish brown; subcostal crossvein placed at the base of the small cell, which is slightly shorter than broad, the distance of the humeral crossvein to the subcostal crossvein is 1.25 times as great as from the latter to the apex of the costa: cubitus forks under or very slightly proximad of tip of subcosta; anal vein strong but incomplete. Length of wing 3½ mm. Kingston, R. I., in May (Barlow); Lawrence, Kas. (Aldrich).

7. *Sciophila novata* n. sp.

Male. Length 4 mm. Subshining brownish black, halteres and legs including coxæ, yellow, body hairs yellow, basal joints of antennæ rather paler than the remainder. Fore metatarsus 15-16 as long as the tibia. Dorsal plate of the hypopygium (fig. 117) with a slightly emarginate posterior border and with a pair of long setæ (s) very sparsely feathered: superior forceps acute, much reduced, not produced beyond the dorsal plate: dorsal lobe of the inferior forceps (fig. 119) with 3 long slender but blunt spines (s) and 16 to 18 palmate spines arranged in more or less of a spiral, those outermost much longer and less crowded than the others: no stout spine on ventral side. Wing yellowish hyaline, veins yellowish: subcosta ends slightly proximad of the fork of the cubitus: the distance from the humeral crossvein to the subcostal crossvein about 1.25 times as far as from the latter to the apex of the subcosta: subcostal crossvein is placed close to the base of the small cell which is slightly longer than the R-M crossvein: anal vein strong but incomplete. Ithaca, N. Y., May. Several specimens.

8. *Sciophila impar* n. sp.

Male. Length 3.5 to 4 mm. Subshining brownish black, the two basal joints of antennæ, coxæ, trochanters (excepting their black apices) legs and halteres yellow. Body hairs yel-

low, setæ of the legs black. Intermediate antennal joints about 1.5 times as long as wide. Hypopygium resembles that of *S. novata* but the dorsal plate differs in having a convex margin with 8 to 10 long, curved, finely but sparsely pubescent setæ and in having the dorsal process of the inferior forceps much more strongly developed (fig. 116). Fore tibia has 1 or 2 small setæ outwardly, and 3 or 4 on flexor surface; middle tibia with 3 or 4 on inner and 1 on outer extensor surface, and 3 or 4 on outer flexor surface; hind tibia with 6 or 8 on inner and outer extensor surface; empodium brush-like, each claw with a single tooth; fore metatarsus is about 1-6 shorter than the tibia, the second tarsal joint about half as long. Wings hyaline, yellowish tinged, veins yellowish brown; the subcostal crossvein placed at or slightly before middle of the small cell R_1 which is about as long as broad, the distance from the humeral crossvein to the subcostal crossvein is twice as great as from the latter to the tip of the subcosta; the cubitus forks slightly distad of the tip of the subcosta; anal vein strong but incomplete. Length of wing is 3 mm., which is over 3 times as long as the fore tibia.

Female. Like the male but the ratio of wing to tibia slightly greater. Specimens taken in September at Jackson Lake, Wyoming, by Prof. W. M. Wheeler.

A male from Black Rock Creek, Wyoming, (Wheeler) and a female from Friday Harbor, Washington, (Aldrich) have the subcostal crossvein at the base of the small cell, and by transmitted light the abdomen has a yellowish tinge, otherwise as above.

9. *Sciophila severa* n. sp.

Male. Length 3.5 mm. In coloring like *S. hebes* but with rather more brownish thorax. Intermediate antennal joints about 1.5 times as long as broad. Dorsal plate of the hypopygium with slightly emarginate border but no plumose setæ; superior forceps somewhat curved with acute apex, only slightly projecting beyond the margin of the dorsal plate; inferior forceps (shown in fig. 112 with the dorsal lobe folded out) with 25 to 30 palmate spines on the dorsal lobe of which 4 or 5 are separated from the others; 2 slender dorsal spines (s), the stout spine on the ventral surface of the forceps of *S. hebes* is wanting in this species. Setæ of the legs as in *S. hebes;* fore metatarsus nearly a tenth shorter, the second tarsal joint slightly

over half as long as the tibia. Wing hyaline, yellowish tinged, veins yellowish brown; the subcostal crossvein is placed at the base of the small cell, which is slightly shorter than broad; the distance from the humeral crossvein to the subcostal crossvein is about 1.25 times as great as from the latter to the tip of the subcosta; the cubitus forks slightly distad of the tip of the subcosta; anal vein incomplete, delicate. Length of wing is 3 mm., which is nearly three times as long as the fore tibia. Ithaca, New York; July.

10. *Sciophila pallipes* Say.

1824. *pallipes*, Say, Long's Exp. St. Peter's River, App. 301.
1878. *pallipes*, Oston Sacken, Catalog. of Diptera. [illegible].

Male. Length 3.5 mm. Scape of the antennæ, halteres, femora and tibiæ yellow, tarsi brownish, remaining parts subshining brownish black, body hairs yellow. Fore metatarsus about 1-16 shorter, the second tarsal joint about 0.5, the wing 3 times as long as the tibia. Hypopygium is like that of *S. nevata* but the dorsal lobe of each branch of the inferior forceps has 2 slender blunt spines and 28 to 30 palmate spines. The distance from the humeral crossvein to the crossvein is 1.6 times as great as from the latter to the tip of the subcosta; the subcostal crossvein is situated near the base of the small cell which is about as long as wide; petiole of the media is shorter than the R-M crossvein; the cubitus forks under or slightly proximad of the tip of the subcosta; anal vein is stout but incomplete. This species has been recorded by Say from the "Northwest Territory." My specimens were taken at Ithaca, New York, and Orono, Maine. The species has also been recorded from New Hampshire.

11. *Sciophila similis* n. sp.

Female. Length 5 mm.; wing 4.5 mm. Front and flagellum of antenna brown; scape, face, proboscis and palpi yellow; hairs yellow. Thorax yellow, without stripes; hairs yellow. Abdomen with the basal half and the narrow apical margin of each segment yellow, intervening space brown, hairs and ovipositor yellow. Legs yellow, tarsi slightly darker; fore metatarsus about 1-12 shorter than the tibia. The wing is less than 2.4 times as long as the fore tibia; yellowish hyaline; the distance from the humeral crossvein to the subcostal crossvein is

over 3 times as long as from the latter to the tip of the subcosta; the subcostal crossvein is situated slightly proximad of the middle of the small cell R_1, which is about 1.5 times as long as wide; the petiole of the media is less than half as long as the R-M crossvein; the strong anal vein ends about opposite the fork of the cubitus and slightly distad of the apex of the subcosta. Halteres yellow.

One specimen. Rigaud, Canada. June 25.

12. *Sciophila fasciata* Say.

1823. *fasciata,* Say, Journ. Ac. Phil. III. 26.

1878. *fasciata,* Osten Sacken, Catalog. Diptera. (*Lasiosoma*).

Length 6 mm. Yellow species; antennæ yellowish, brown apically; vertex brown. Mesonotum with pale brown longitudinally divided median stripe narrowed and abbreviated posteriorly; lateral stripes reddish brown abbreviated anteriorly; over the base of the wing with another smaller and less conspicuous stripe; pleura with a brown spot over each coxa, these spots arranged in a triangle, the lowest itself triangular. Abdominal segments with brown posterior margins. Wing slightly yellowish. Tibiæ and tarsi slightly infuscated. Recorded from Pennsylvania, Maryland, and New Mexico.

13. *Sciophila hirta* Meigen.

1818. *hirta,* Meigen. Syst. Beschr. I. 251.

1863. *hirta,* Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 749 (*Lasiosoma*).

Male and female. Length 3 to 4.5 mm. Shining black, or fuscous, including antennæ, palpi and tarsi; halteres, coxæ, legs, and body hairs yellow. Wings fuscous tinged; cell R_1 small, square; subcostal crossvein placed at or slightly proximad of the middle of this cell. Fore metatarsus 13-16 as long as the tibia.

This form which has been recorded from Greenland may be distinguished from other dark colored species by its wholly black antennæ, and by the location of the subcostal crossvein with respect to the small cell.

14. *Sciophila popocatepetli* Bellardi.

1859. *popocatepetli,* Bellardi, Saggio di Ditt. Messicana. I. 211.

Female. Length 6 mm., expanse of wings 17 mm. Black, cinereous pollinose; humeri, lateral stripes and obsolete spot at

base of the wing, posterior margin of thorax, pleura and sternum, lutescent: the last two with cinereous; thoracic setæ fine, black, and numerous, but not long, scutellar setæ long and black. Abdominal tergites with lutescent posterior margins. Legs fuscous, darker apically. Wings scarcely grayish, stigma fuscous; cell R_1 square, small, the bounding veins black and thickened. Halteres yellow, knob scarcely infuscated.

Mt. Popocatepetli, Mexico, altitude 3,800 meters. The description is insufficient for positive generic reference, but the numerous thoracic setæ and small cell R_1 suggest *Sciophila* (*Lasiosoma*).

Genus *Paratinia* Mik.

Paratinia. Mik. Verh. Zool.-bot. Ges. Wien, XXIV. 333. 1874.

Head placed low upon the thorax: palpi incurved, 4 jointed, the basal joint very short, the third and fourth cylindrical: eyes oval, somewhat emarginate at the base of the antennæ; ocelli 3 in number, arranged in a transverse line on the front, the middle one but little smaller than the laterals: antennæ projecting forward, 2+14 jointed, the basal joints very small, cupuliform, the flagellar joints cylindrical, sessile, the joints gradually diminishing in length from the base to the tip. Thorax very highly arched, metanotum steep, scutellum small and without long setæ. Abdomen long and slender, 7 segmented. Wing broad, with rather long hairs, especially apically, besides the usual setulæ: costa produced beyond the tip R_{4+5}: subcosta ending in the costa proximad of the middle of the small cell R_1, this cell much longer than broad: Sc_2 (subcostal crossvein) proximad of the small cell R_1: the petiole of the fork of the media about half as long as the anterior branch: the cubitus forks proximad of the fork of the media: anal vein delicate and incomplete (fig. 87). Legs long: tibial setæ very delicate or wanting, the spurs long.

The members of this genus may be distinguished from *Mycomya* by the widely separated ocelli of which the middle one is quite distinct: from the other *Sciophilinæ* they may be separated by the wing venation.

Paratinia recurva n. sp.

Male. Length 5 mm. Head fuscous, transversely oval, somewhat flattened in front, hairy: ocelli 3 in number arranged in a nearly straight transverse line on the broad vertex: mouth

parts fuscous; antennæ much longer than the head and thorax, pale yellow, the joints of the scape nearly spherical, fuscous, first flagellar joint over 5 times as long as wide, the following joints gradually decreasing in length. Thorax ochraceous, with 5 faintly brown longitudinal stripes, the middle one abbreviated behind, the next pair converging posteriorly, the outer pair abbreviated anteriorly; upon these lines are arranged hair-like setæ, those over the base of the wing and on the scutellum longest; pleura, sternum and metanotum brownish, nearly bare. Abdomen brown, posterior markings of the segments yellowish, hairs short, yellow; the abdomen long, slightly thickened apically, hypopygium (fig. 124) small. Coxæ and legs long, yellow, the tibia and tarsi somewhat darker, due mainly to the presence of brownish hairs; no lateral tibial setæ, tarsi sparsely ciliated with very short and fine dark setæ; spurs pale yellow, little less than twice as long as diameter of the tibia at the apex; claws very small, apparently with only a single fine tooth near middle; empodium brushlike; fore metatarsus 0.9, the second fore tarsal joint 0.32 as long as the tibia. Wings hyaline, large, broad, longer than the abdomen, with long hair, especially apically, among the usual minute setulæ; veins yellowish brown; costa (fig. 87) ends at the tip of the wing and beyond the tip of R_{4+5}, which is much arched; cell R_1 about 5 times as long as wide; subcosta ends about opposite the proximal end of the small cell; the subcostal crossvein is nearly the length of the small cell proximad of the apex of the subcosta; media forks slightly proximad of the apical end of the small cell, and the cubitus forks slightly distad of its base; anal vein not strong, ends a little distad of the fork of the cubitus. The figure 87 shows the wing slightly foreshortened. Halteres long, infuscated; knob ovate, its base and tip more yellowish.

One specimen from Old Forge, New York, collected by Professor Needham in August.

6. Genus *Polylepta* Winnertz.

Polylepta, Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 745. 1863.

Head small, flattened in front, placed low upon the thorax; eyes oval, somewhat emarginate at the base of the antennæ; ocelli 3 in number, placed in a more or less curved line on the

broad front, the middle one smaller than the laterals: palpi incurved, 4 jointed, the first joint very small, the second and third subequal, the last one longer than the others taken together: antennæ projecting forward, somewhat compressed, 2—14 jointed, the basal joints cupuliform, the flagellar joints cylindrical; pubescent. Thorax very short, highly arched: metanotum high, scutellum small: halteres with elongate knob. Abdomen long and slender: in the male somewhat clavate: genitalia small (figs. 118, 121), abdomen in the female cylindrical, constricted at the base, 7 segmented. Legs long, tibiæ with spurs and with lateral setæ. Wings elongate oval, not longer than the abdomen, microscopic hairy. The costa is usually produced beyond the tip of R_{4+5} and nearly or quite reaches the tip of the wing; subcosta ends free or beyond the small cell R_1, which is usually shorter than wide, and noticeably proximad of the middle of the wing: R_{4+5} much curved or undulate, petiole of the media much longer than the R-M crossvein: the cubitus forks proximad of the fork of the media: anal vein incomplete (figs. 88-90). Immature stages unknown.

It seems to me that the characters used to separate *Empalia* from *Polylepta* are scarcely sufficient to give these independent generic rank.

Table of Species.

a. Subcosta ends free.

b. Subcostal crossvein stands on the small cell, which is about twice as long as wide; Mass. 1. ***fragilis.***

bb. Subcostal crossvein is far proximad of the small cell: N. H., Ind. (fig. 90). 2. ***leptogaster.***

aa. Subcosta ends in the costa.

b. Subcosta ends more than the length of the R-M crossvein distad of the small cell: cubitus forks distad of R_{2+3} (fig. 88). 3. ***obediens*** n. sp.

bb. Subcosta ends opposite the distal end of the small cell: cubitus forks proximad of the R-M crossvein (fig. 89). 4. ***nigellus*** n. sp.

For *P. tibialis* Coq. see genus *Empalia*. Walker's species *P. grisea* (5) is not sufficiently well described to place generically. I suspect it is the same as *Sciophila pallipes* Say.

1. *Polylepta fragilis* Loew.

1869. *fragilis,* Loew, Berl. Ent. Zeitschr. XIII. 138.

Female. Length 4 mm. Fuscous black, slightly white pollinose, subopaque. Antennæ fuscous black, the scape and the extreme base of the flagellum yellowish, the first joint of the former fuscous above; palpi yellow; ocelli arranged in a flattened triangle. Coxæ and legs yellow, the tarsi except their bases, fuscous. Wings subhyaline, cinereous fuscous tinted; veins fuscous; costa not produced beyond the tip of R_{4+5}; cell R_1 nearly twice as long as wide, the subcostal crossvein placed at the middle of the anterior margin of this cell; subcosta is strong from the base of the wing to the crossvein, then abruptly interrupted; petiole of the media a little shorter than M_1 but over twice as long as the cell R_1; cubitus forks distad of the R-M crossvein; R_{4+5} noticeably undulating. Halteres pale. Recorded from Massachusetts.

2. *Polylepta leptogaster* Winnertz.

1863. *leptogaster,* Winnertz, Verh. Zool.-bot. Ges. XIII. 746.

Female. Length 4.5 mm. Body brown. Margin of the mouth produced and bordered with hairs. The filiform antennæ 1 1-3 times as long as head and thorax combined, the flagellar joints 3 to 4 times as long as broad. Abdomen very slender, cylindrical, 5 to 6 times as long as the very short thorax, constricted at the base. Coxæ and femora yellow, tibia slightly darker, tarsi pale brown. Fore tarsus 2 1-3 times as long as the tibia, the latter about 1-16 shorter than the metatarsus. Wings hyaline, somewhat cinereous tinged. costa (fig. 90) produced beyond R_{4+5} to the apex of the wing; subcosta ends free proximad of the R-M crossvein; the subcostal crossvein far retracted, cell R_1 trapezoidal, 1½ to 2 times as long as broad; petiole of the media about half as long as M_1; cubitus forks distad of the small cell; anal vein slender, incomplete. Halteres whitish, with fuscous knob. Recorded from N. H. and Indiana.

3. *Polylepta obediens* n. sp.

Male. Length 5 mm. Head black; proboscis reddish; palpi and basal joint of antennæ yellow, face and flagellum fuscous, the intermediate joints of the latter about ¼ longer than the diameter. Mesonotum opaque with 3 dull dark brown conflu-

ent stripes; pleura, metanotum and scutellum brown; humeri, base of scutellum and upper margin of the pleura, yellow, hairs pale. Tergites each with dark brown margin posteriorly which is produced forward on the middle line covering over half of the segment, the whole of the first and the last two mainly, brown. Venter, and anterior part of each tergite mainly yellow, hairs pale; hypopygium as figured (fig. 118). Coxæ and legs together with the hairs yellow, setæ of tibiæ and tarsi black, the longest of the tibial setæ not longer than the diameter of the tibia; trochanters margined with black; (fore legs broken in specimens); proximal fourth of middle tibia distinctly swollen; empodium not prominent; tarsal claws each with a basal tooth. Wings (fig. 88) hyaline, anterior veins brownish, posterior veins yellow, costa produced the length of the R-M crossvein beyond the tip of R_{4+5} but does not quite reach the tip of the wing; the subcosta is produced more than twice the length of the R-M crossvein beyond the distal end of the small cell R_1; the subcostal crossvein is placed beyond the middle of this cell; R_1 is nearly straight, R_{4+5} with a strong sigmal curve; M_1 about 1¾ times as long as the petiole of the media; cubitus forks a little distad of the middle of the petiole of the media; anal vein not strong, incomplete; halteres yellow. One male specimen from Pine Lake, Wisconsin, collected by Prof. W. M. Wheeler, in June; and another from Bedford, Mass.

Female. Like the male but the base of the middle tibia is not swollen; the first and second palpal joints are but little longer than wide; the third and fourth subequal, about four times as long as wide, produced part of costa not quite as long as the R-M crossvein; fore metartarsus is 1 1-6 times as long as the tibia.

One female specimen from Hampton, N. H., collected by Mr. S. A. Shaw. This species differs from the European *undulata* in having a dull mesothorax.

4. *Polylepta nigellus* n. sp.

Male. Length 6 mm. Head black, subshining, second antennal joint yellow, remaining joints fuscous, proboscis and palpi subfuscous; antennæ longer than the thorax, third joint over twice as long as broad. Thorax and abdomen wholly subshining black, except the humeri which are narrowly yellow; setæ black; some of the hairs of abdomen subfuscous. Hypo-

pygium black, inconspicuous (fig. 121). Coxæ and legs yellow, trochanters tipped with black, tarsi brown; setæ of the legs and on the coxæ black; fore metatarsus .7 as long as the tibia; claws each with 2 short teeth; empodium brush-like. Wings (fig. 89) smoky hyaline, yellow basally, distal end of the heavier veins yellowish brown, the remaining veins yellow. Costa almost reaches the tip of the wing and is produced half the length of the R-M crossvein beyond the tip of R_{4+5}; the subcosta ends opposite the distal, the subcostal crossvein opposite the proximal end of the small cell R_1, which is trapezoidal and about as long as broad; M_1 is about 5.5 times as long as the petiole of the media; the sigmoid curve of R_{4+5} is quite noticeable; cubitus forks very slightly proximad of the base of the R-M crossvein; anal vein strong but incomplete. Halteres yellow. One specimen taken by Professor J. M. Aldrich on Mt. Constitution, Orcas, Id. Washington, in July.

5. (?) *Polylepta grisea* Walker.

1848. *grisea,* Walker. List of Diptera. Brit. Museum (*Sciophila*).

Body dark grayish brown, clothed with yellowish hairs; eyes black; palpi tawny; feelers black, ferruginous at the base; legs pale yellow; feet somewhat darker; wings colorless, veins brown; poisers pale yellow. Length of the body 4 mm.; of the wings 8 mm. St. Martin's Falls, Albany River, Hudson Bay.

Recorded also from N. H.

7. Genus *Empalia* Winnertz.

Empalia, Winnertz. Verh. Zool.-bot. Ges. Wien, XIII. 763. 1863.

Head, eyes, antennæ, and legs as with *Sciophila* (*Lasiosoma*). Ocelli 3 in number, the laterals large, the middle one rather small, placed in a nearly straight transverse line, somewhat separated from each other, on the broad front. Palpi 4 jointed, incurved, the first joint small, the second twice as long, the third longer than the first 2 taken together, the fourth filiform, half again as long as the third. Thorax small, oval, highly arched, mesonotum short haired and without setæ; scutellum small. Abdomen 7 segmented, constricted at the base, tapering toward the apex; in the male compressed, in the female cylindrical, the ovipositor ending in 2 small lamellæ; the hairs short and appressed. Wings elongate oval, with rounded base,

shorter or not longer than the abdomen, microscopically hairy. Costa produced far beyond the tip of R_{4+5}, but not reaching the tip of the wing; the subcosta ends over the small cell R_1 curved toward the costa; Sc_2 (subcostal crossvein) proximad of the small cell; petiole of the fork of the media longer than the R-M crossvein; cubitus forks proximad of the fork of the media, but distad of the R-M crossvein: anal vein very short and incomplete (fig. 91). Winnertz reared specimens of this genus from rotten stems of *Carpinus betulus*.

Empalia tibialis Coquillett.

1901. *tibialis*, Coquillett, Proc. U. S. Nat. Mus. XXIII. 596. (*Polylepta*).

Female. Length 5 mm. Head black, the face yellow and rather densely covered with bristly hairs: antennæ brown, the bases yellow, the third joint about twice as long as wide: mouth parts yellow, the penultimate and antepenultimate joints of palpi with leaf-like prolongation at the upper side of their outer ends: thorax polished, yellow, 2 approximated vittæ on the mesonotum and a transverse row of 3 spots on the metanotum dark brown, the hairs and bristles black: scutellum brownish yellow: abdomen yellow, the broad apices of the segments, sometimes crossing the segment in the middle of the dorsum, dark brown: halteres and legs yellow, the tarsi yellowish brown: front tibiæ each with a deep groove before apex of anterior side, extending about one-third length of tibia: wings grayish hyaline, costal cell tinged with yellow, subcostal vein obliterated at its apex, the crossvein slightly before base of radial sector, cubitus forking opposite the cell R_1. N. H., N. J.

This species, originally located in *Polylepta*, I think is more naturally placed with *Empalia*. The straight course of R_{4+5} seems to me to have greater value as a generic character than the incompleteness of the subcosta. See note under the genus *Polylepta*.

8. Genus *Dziedzickia* Johannsen.

Dziedzickia, Johannsen, Genera Insectorum 44. 1909.

Hertwigia, Dziedzicki, Pamietnik Fizyjograf. V. 3. 1885.

Eyes oval, somewhat notched out around the base of the antennæ, widely separated: ocelli 3 in number, the middle one smaller, arranged in a transverse line on top of the head and

widely separated from the eyes; palpi 4 jointed, cylindrical, the first 2 joints short, third joint about half again as long as the second, the fourth slender, sickle shaped, twice as long as the third; antennæ 2+14 jointed, the first one cyathiform, the second cylindrical, the following joints cylindrical, slightly constricted in the middle. The hypopygium stands out, ovate in form, rather large, and not retractile into the abdomen. The tibial setæ are present. The costa extends beyond the tip of R_{4+5}, just reaching the tip of the wing; subcosta ends in R_1 upon the small cell R_1; this cell is usually over twice as long as wide; the media is forked under the distal extremity of this cell; the cubitus forks far proximad of the R-M crossvein, its branches widely separated; the second anal vein is stout and ends far beyond the base of the fork of the cubitus; the third anal vein is rather long but slender (fig. 92).

Table of Species.

a. Wings hyaline.
   b. Petiole of the media about five times as long as the R-M crossvein. 1. *pullata.*
   bb. Petiole of the media about twice as long as the R-M crossvein. 3. N. sp.
aa. Wings dark brown; petiole of the media about equal to the R-M crossvein in length. 2. *fuscipennis.*

1. *Dziedzickia pullata* Coquillett.

1904. *pullata* Coquillett, Invertebrata Pacifica I. 19. (*Neœmpheria*).

Male. Length 3.5 mm. Brown, the first two joints of antennæ, humeri, genitalia and legs, yellow, the latter changing to brownish toward apices of tarsi; antennæ over twice as long as the head and thorax, joints of flagellum very elongate, the third joint of antennæ about 5 times as long as wide; body opaque, the hairs and bristles black; bristles of tibiæ shorter than greatest diameter of the latter; wings hyaline, pubescent, subcostal vein terminates in R_1 slightly before middle of cell R_1, this cell about 3 times as long as wide, R_{4+5} strongly bowed forward, peduncle of cell M_1 about 5 times as long as the R-M crossvein, cubitus at about one-fourth of distance from its base to the R-M crossvein. Stanford University, California.

Two male specimens taken in December by Professor W. M.

Wheeler agree perfectly with Mr. Coquillett's description, to which I may add that the fore metatarsus is about ¾ as long as the tibia; empodium brush-like, shorter than the claws which have 2 teeth each; hypopygium small (fig. 120), and anal vein does not reach the margin (fig. 92).

2. *Dziedzickia fuscipennis* Coquillett.

1905. *fuscipennis*, Coquillett. Journ. N. Y. Ent. Soc. XIII. 67. (*Sciophila*).

Female. Length 6 mm. Distinguished by the dark brown wings. Black, the femora, tibiæ and bases of the tarsi and of the halteres, yellow. Mesonotum polished, its hairs chiefly yellow, the marginal bristles mostly brown, hairs of abdomen chiefly brown. First joint of front tarsi about 2-3 as long as the tibiæ. Wings dark brown, subcosta terminates in R_1 near the middle of the small cell, petiole of cell M_1 subequal in length to the R-M crossvein, cubitus forks far before the R-M crossvein. Length 6 mm. Kaslo, British Columbia.

In this species the cell R_1 is much shorter than in *D. pulata*.

3. *Dziedzickia* n. sp.

There is an unnamed specimen from New Hampshire in the Loew collection at Cambridge with hyaline wings in which the petiole of the media is about twice as long as the R-M crossvein. A note in German apparently written by Loew indicated that he was uncertain of its generic position and therefore refrained from naming it.

9. Genus *Hadroneura* Lundström.

Hadroneura, Lundström, Acta. Soc. Fauna. Flora Fenn. 29. 1907.

Ocelli 3, middle one distinct. Wings (fig. 93) microscopically setulose; costa slightly produced beyond the tip of R_{4+5}; the veins of the anterior parts of the wing unusually thickened; the cell R_1 elongated. The proboscis produced snout-like (fig. 61 in Pt. I). Abdomen 8 segmented. Distinguished from *Dziedickia* by the snout-like proboscis and somewhat heavier wing veins.

Hadroneura kincaidi Coquillett.

1900. *kincaidi,* Coquillett, Proc. Wash. Ac. Science. II. 391. (*Neœmpheria*).

Female. Length 6 mm. Head and its members black, second joint of antennæ yellow, about one-half as long as the third, the 3 ocelli in a transverse row and widely separated from each other; thorax black, opaque, gray pruinose, the mesonotum marked with 4 polished vittæ, scutellum black, the base narrowly yellow, its hairs and those of the thorax golden yellow; abdomen brownish black, slightly polished, its hairs yellowish; coxæ and femora yellow, tibiæ yellowish brown, tarsi dark brown, front tarsi toward their apices, noticeably higher than wide; halteres yellow; wings hyaline, bare, subcostal vein ending in R_1 before middle of cell R_1, the latter about twice as long as wide, anterior fork of media about 10 times as long as its petiole, cubitus forking far before R-M crossvein, the latter shorter than first section of radial sector. Popof Island, Alaska. July.

I have seen this species at the U. S. Nat. Museum, hence the generic reference.

10. Genus *Diomonus* Walker.

Diomonus, Walker, List. Dipt. Brit. Mus. I. 87. 1848.

Large species, over 6 mm. in length. Ocelli 3, widely separated, the middle one but little smaller than the laterals; antennæ 2+14 jointed, first basal joint pilose beneath. Thorax pilose rather than setose. The costa (fig. 94) ends at or but very slightly beyond the tip of R_{4+5} close to the tip of the wing; R_{4+5} slightly bowed back at the middle; cell R_1 less than twice as long as wide; petiole of the media longer than the R-M crossvein; the cubitus forks far proximad of the fork of the media; the setulæ are longer and more dense than in *Mycomya;* the wing is marked with two dark spots. Legs very long, fore metatarsus longer than the tibia; the middle femur of the male bears a blunt spine on the under side; hypopygium small (figs. 123, 125).

Walker's comparison of this genus with *Leptomorphus* is a most happy one, for with the exception of the presence of R_{2+3} in the wing of *Diomonus,* the two are very similar in structural characters.

Table of Species.

a. Fulvous species.

b. Thorax with blackish stripes: hypopygium as figured (fig. 123); abdomen not distinctly fasciate. 1. *bifasciatus.*

bb. Thorax without blackish stripes: abdomen fasciate with brown; hypopygium resembles that of *D. pulcher* (fig. 125). 2. *magnificus.*

aa. Blackish species.

b. Thorax strongly tinged with blue, palpi brownish yellow or yellow.

c. Apical half of antennæ pale yellow; legs mainly black. 3. *nebulosus.*

cc. Antennæ of the male dark brown; legs mainly yellow. 4. *subcæruleus.*

bb. Thorax and abdomen tinged with brown, palpi dusky; hypopygium as figured (fig. 125). 5. *pulcher.*

1. *Diomonus bifasciatus* Say.

1824. *bifasciatus*, Say, Long's Exp. App. 363. (*Sciophila*).

Male. Length 8 to 10 mm. Antennæ brown: basal joints yellow: face yellow, at the base of the antennæ black, remainder of head brownish or blackish: palpi yellowish. Mesonotum yellow with a pair of oblique slender blackish stripes which arise near the anterior margin where they are clubbed, and meet at the base of the scutellum: another wider stripe along the lateral margin which nearly or quite touches the oblique stripe anteriorly: metanotum yellowish brown: lower half of the pleura brownish: hairs yellowish for the most part. Abdomen reddish, segments but slightly if at all darkened apically: hypopygium small (fig. 123). Legs yellow, tarsi slightly darker; fore metatarsus nearly 1.5 times the tibia in length: wings yellowish tinged, with a brown spot covering the small cell and the crossveins, short preapical fascia extending from the tip of R_1 to M_1 and a very faint cloud proximad of Cu_2: anal vein strong but incomplete. Halteres yellow, base of the knob more brownish.

Recorded from Northwest Territory, and N. H. My specimen is from the latter locality.

2. *Diomonus magnificus* n. sp.

Male. Length 8 to 12 mm. Head shining blackish brown, hairs mainly yellow; face strongly produced, yellow, palpi and other mouth parts yellow, scape of the antennæ yellow, the pile on the under side of the first joint yellow; flagellum fuscous, its first joint about 4 times as long as wide. Thorax and abdomen fulvous with yellow hair; the tergites with brownish posterior margins. Legs yellow, tarsi slightly darker; fore metatarsus about 1⅜ times as long as the tibia; all claws with 2 teeth each; empodium represented by a few short setæ. Hypopygium resembling that of *D. pulcher* but the serrate lateral margin of the apex of the appendage marked "a" in figure 125 is much shorter (fig. 114). Wings hyaline, yellow tinged, veins yellowish to yellowish brown, setæ black, of greater length than the diameter of the largest vein, conspicuous; costa extends a very little beyond the tip of R_{4+5}; the subcostal vein ends in the costa about opposite the distal end of the small cell R_1 which is nearly twice as long as wide; the subcostal crossvein is placed but slightly distad of the proximal end of the cell R_1; R_{4+5} is nearly straight and ends before the tip of the wing; petiole of the media is nearly half as long as M_1; the cubitus forks noticeably proximad of the R-M crossvein; anal vein strong but incomplete; a brown spot covers the small cell and the crossvein; a preapical triangular spot the apex of which is produced to the media; a faint cloud follows the course of the petiole of the media and another the course of Cu_2, broadening on the margin. Halteres yellow with more or less infuscated knob.

Female. Similar to the male except for sexual characters. Ithaca, N. Y.; Salineville, Ohio; Mt. Greylock, Mass., (Owen Bryant, collector).

3. *Diomonus nebulosus* Walker.

1848. *nebulosus,* Walker. List. Dipt. Brit. Mus. I. 87.

Body purplish black, shining; palpi tawny; feelers bright yellow, black towards the base, a little longer than the chest, having 15 or 16 joints; first and second joints dark red; mouth dark red; legs black; tips of the hips and thighs at the base pale yellow; hind thighs armed beneath, near their tips, with long, stout spines; knees yellow, shanks with two long spines at their tips; feet reddish brown; wings slightly tawny, with gray tips, and each having a brown spot near the fore border

a little before the middle: veins brown: poisers yellow, with brown tips. Length of body 10 mm.; of the wings 16 mm. St. Martin's Falls, Albany River, Hudson's Bay. A male specimen in the Loew collection at Cambridge, Mass., has the apical half of the antennæ nearly white, sharply contrasting with the basal half.

4. *Diomonus subcæruleus* Coquillett.

1901. *subcæruleus*, Coquillett. Proc. U. S. Nat. Mus. 595.

Male. Length 9 to 13 mm. Black, polished and strongly tinged with blue, the mouth parts brownish yellow, antennæ dark brown, a yellow spot on each prothoracic spiracle; coxæ, femora, and tibiæ, yellow, the tarsi brownish yellow, halteres yellowish brown, the apices and peduncles yellow; hairs of mesonotum short, depressed, yellow, those of the sides, head, and abdomen rather long and black; wings densely hairy, grayish hyaline, a brownish spot at the R-M crossvein and a second beneath apex of R_1; cubitus forking before base of radial sector; cell R_1 about as broad as long; front tibiæ noticeably shorter than the first joint of their tarsi; middle femora each bearing a robust, outwardly directed spine on the under side a short distance before the apex. Apical half of antenna of female light yellow. N. H., Pa., Canada.

5. *Diomonus pulcher*, Johannsen.

1913. *pulcher*, Johannsen, Ent. News, XIV, 14. (*Scaphilia*).

This fly differs from *S. subcærulea* Coq. in the following particulars: The thorax has no bluish tinge, the mouth parts are black and not yellow, and the antennæ are gray.

Male. Length 10 mm. Black, polished, with a brownish tinge. Palpi black, basal joint yellowish; face, front and occiput shining black. Antennæ fuscous, with whitish, very short appressed pile. Dorsum of the thorax, scutellum, metanotum and pleura polished black, sparsely covered with very short pale hairs; the prothoracic spiracle, the dorso-pleural suture, and behind the root of the wings slightly yellowish. Abdomen shining black with a brownish tinge, especially at the incisures and the venter. The hairs covering the abdomen are short and pale. Femora and coxæ, and anterior and middle tibiæ are a deep yellow; hind tibiæ are slightly infuscated, all tarsi are brown, darker apically; tips of the posterior femora and of all tibiæ are brown. The middle femora have a short, stout, blunt

spur on the under side near the apex; the fore tibiæ each with one, the middle and hind tibiæ with two spurs. The wing venation resembles that shown in figure 94, the forking of cubitus being proximad of the crossvein, the subcostal crossvein is near the base of the small cell; R_1 is nearly straight, and R_{4+5} is slightly curved forward so that the distal third is parallel with R_1 and ends more than the length of the R-M crossvein before the tip of the wing. The cell R_1 is about 1.5 times as long as broad. The wings are short haired; the veins are yellow excepting the crossveins which are dark brown. Covering the crossvein is a pale brown cloud, and near the apex below R_1 is another. The halteres are a dusky yellow or brown, the base of the peduncle is yellow. Described from one specimen taken June, 1901, at Axton, N. Y.

I have also seen a specimen from Hampton, N. H., collected by Mr. S. A. Shaw. To the above description I may add that the three ocelli are in a transverse row on the front; the fore metatarsus is nearly 1.4 times as long as the tibia in the male, a little less in the female; claws all with two basal teeth; hypopygium as shown in figure 125.

A female specimen taken by Mr. Shaw at the same place and time differs in having the intermediate segments of the abdomen with a reddish tinge; in one wing wholly lacking R_{2+3}, and but feebly indicated in the other. This specimen would have been classified with *Leptomorphus* owing to the defective venation had it not been accompanied by the male.

11. Genus *Neæmpheria* Osten Sacken.

Neæmpheria, Osten Sacken, Catl. Dipt. 9, 1878.

Empheria, Winnertz, Verh. Zool.-bot. Ges. Wien. XIII. 707. 1863.

Ocelli two, large, closely approximate, if a median one is present it is exceedingly minute; eyes usually circular, but little if any emarginate; antennæ somewhat compressed; no spur on middle coxæ of males; costa (fig. 95-100) usually produced more or less beyond the apex of R_{4+5} which usually does not reach the tip of the wing; a conspicuous longitudinal fold lies between the radial sector and the media; wing with fasciæ or spots. Thorax somewhat setose; hypopygium various. In other respects like *Mycomya.*

In "Genera Insectorum" I united this with *Mycomya*, treating it as a subgenus, for the reason that I did not consider the fasciate wings of generic value, none of the other characters being uniformly trustworthy. I restore it because I now believe that in addition to the markings on the wing there are sufficient structural characters which combined mark the genus even though none of them can independently be relied upon. The hypopygia while apparently differing from that of *Mycomya* are so varied and so complex in both genera that I have not yet found a single character which could be used to separate the two.

Table of Species.

a. Media forks distad of the small cell R_1 which is not more than 3 times as long as wide.

b. Extremity of the wing not hyaline.

c. Tergites of the first, third and fifth, and larger part of sixth, segments dark brown; a spot near anterior margin of second and fourth segments and produced in a median line, remaining parts and venter, yellow; entire dorsum sometimes dark brown. Length 4 mm. (fig. 98).

1. *macularis* n. sp.

cc. Intermediate abdominal segments each with a pair of spots near posterior margin, sometimes obsolete; length 5½ mm. 2. *didyma.*

bb. Wing with broad subapical fascia, the apex of the wing clear hyaline.

c. Spot which covers the R-M crossvein extends nearly to the posterior wing margin; small cell R_1 over twice as long as wide; apex of subcosta evanescent.

d. Subcostal crossvein is situated proximad of the base of the small cell R_1; (fig. 95).

3. *nepticula.*

dd. Subcostal crossvein is slightly distad of the base of the small cell R_1; (fig. 96).

4. *impatiens* n. sp.

cc. The spot which covers the small cell and the crossvein does not reach the base of the fork of the cubitus; the subcostal crossvein is placed distad

of the middle of cell R_1; subcosta ends in the costa (fig. 99). 5. *indulgens* n. sp.

aa. Media forks proximad of the apex of the cell R_1 which is more than 3 times as long as wide.

b. Apex of cells R_{4+5} and M_1 nearly hyaline. St. Vincent Isl., W. I. 6. *maculipennis.*

bb. Apex of cells R_{4+5} and M, broadly brown clouded.

c. The brown cloud covering R_{2+3} produced across the media; subcostal crossvein proximad of the apex of the very oblique basal section of the radial sector (fig. 100). 7. *illustris* n. sp.

cc. The brown cloud covering R_{2+3} not produced; a brown cloud behind Cu_2; abdominal segments bimaculate (fig. 97). 8. *balioptera.*

1. *Neœmpheria macularis* n. sp.

Male. Length 4 mm. Head and antennæ yellow, the latter slightly darker apically; palpi dark brown, ocellar tubercle black; second joint of scape with a black seta on dorsal side near apex, the basal joints of flagellum over twice as long as wide, the apical end of each joint of flagellum except the first with setulæ more erect than on the remainder of the joint. The pleura, sternum, scutellum, and lateral margin of mesonotum pale yellow; the dorsum pale brown, margined with darker brown, on the paler portion are 2 fine longitudinal lines which converge and meet in the vertex of an elongate triangular brown spot just cephalad of the scutellum; metanotum brown. The lateral margins of the mesonotum are provided with black setæ, more conspicuous at the base of the wings, also a few on anterior margin and just cephalad of scutellum, a few small ones on the dorsum, two longer ones on the scutellum. Tergites of the first, third, fifth and a larger part of the sixth segment of the abdomen dark brown; a spot near the anterior margin of the second and fourth and produced in a median line; the remaining parts, venter, and hypopygium (fig. 130) yellow. Legs yellow, tarsi more dusky, fore metatarsus is over 0.9 as long as the tibia; setæ of fore tibiæ few and short, those of middle and hind pairs more numerous, the longest about as long as the diameter of the tibia; spurs black; claws with one tooth each. Wings (fig. 98) hyaline, with a spot covering the small cell and the R-M crossvein but not reaching the cubitus, another cover-

ing the apex of the wing from the tip of R_1 to the tip of Cu_1, apex without hyaline spot; subcosta ends in costa opposite apex of small cell R_1; subcostal crossvein a little before the middle of this cell, the latter but little longer than broad; costa noticeably produced beyond R_{4+5}: petiole of the media about half as long as M_1; the cubitus forks under the base of the R-M crossvein. Halteres yellow. Ithaca, N. Y.

A female specimen from Montreal differs in having the top of the head pale brownish, no fine brown lines on the mesonotum, and the brown of the second and fourth segments of the abdomen more extended, produced into a fine line to the posterior margin; fore metatarsus and tibia subequal.

2. *Neœmpheria didyma* Loew.

1860. *didyma* Loew, Berl. Ent. Zeitschr. XIII. 136 (*Empheria*).
1866. *bimaculata* Loew, Berl. Ent. Zeitschr. X. 6 (*Sciophila*).

Female. Length 5.5 mm. Yellowish. Flagellum of the antennæ fuscous black, palpi black. The first segment of the abdomen fuscous black excepting the sides and posterior margin, the intermediate segments yellow each with 2 transverse black spots on the posterior margin. Legs yellow, tarsi blackish toward their tips. Wings with cinereous tinge, toward the costa more yellowish: the costa produced slightly beyond R_{4+5}: subcostal crossvein at or distad of the middle of cell R_1, this cell of medium size and much shorter than the petiole of the media; the first section of the radial sector and the R-M crossvein covered by a cinereous fuscous spot, apex of the wing and apex of the posterior angle widely cinereous fuscous. Halteres yellow. Recorded from Canada.

3. *Neœmpheria nepticula* Loew.

1860. *nepticula* Loew, Berl. Ent. Zeitschr. XIII. 137. (*Empheria*).

Male and female. Length 2.5 mm. Pale yellow, palpi black, vertex and sometimes the mesonotum dusky yellow: the first, third and fifth abdominal segments black, the anterior half of the second blackish, the sides of the first segment in mature or the whole of the segment in immature specimens yellow. Wings (fig. 95) subhyaline, lightly cinerescent: costa produced far beyond R_{4+5}, subcosta is paler and more slender than the other veins, becomes obsolete at the apex: subcostal vein is

placed near the tip of the costa and slightly proximad of the base of the cell R_1, petiole of the media 3 times as long as this cell; a fuscous cinereous fascia extends from R_1 nearly to the posterior wing margin where it becomes very faint; apical third of the wing fuscous cinereous, becoming paler at the apex so that the mark appears like a subapical fascia. Fore metatarsus and tibia subequal. Length of wing 2.2 mm. Halteres pale. Recorded from Georgia and New Jersey. I have also seen a specimen from North Carolina.

4. *Neœmpheria impatiens* n. sp.

Related to the foregoing but differs in being larger, in having the subcostal crossvein slightly distad of the base of the cell R_1 and in having the petiole of the media about twice as long as this cell.

Female. Length 4.5 mm. Head yellow; ocellar spot and palpi black, labellæ tipped with brown; occiput tinged with brown; a transverse row of 6 or 8, black, procumbent setæ just behind the ocelli. Mesonotum yellow, median and lateral stripes pale brown, the latter more distinct at base of wing; scutellum and mesonotum pale brown, pleura yellow with a longitudinal stripe over the middle and hind coxæ; setæ black, most conspicuous at the base of the wing and in front of scutellum, 2 long scutellar setæ. Dorsum of the first, second, third, fifth, and sixth segments dark brown; the posterior and lateral margins of these segments, the venter, ovipositor, and remaining segments, yellow. The dark coloring on the dorsum of the third and fifth segments rather more extended than on the others, covering all but very narrow lateral and posterior margins, ovipositor slender (fig. 131). Legs yellow, setæ and setulæ black, tarsi appear more dusky. Middle and hind tibiæ each with several rows of about 8 short black setæ in each row; each claw with a tooth near base; fore metatarsus and tibia subequal in length. Wings (fig. 96) hyaline, each with 2 broad brown bands, the first from costal cell covering cell R_1 and extending to beyond the fork of the cubitus, gradually fading out toward posterior margin; the second, subapical, leaving the apices of costa and R_{4+5} clear, extending to anterior branch of cubitus. Costa prolonged beyond apex of R_{4+5} and not reaching tip of wing; the subcostal crossvein joins the radius slightly distad of the base of cell R_1, the subcosta extending a little beyond this,

gradually becoming fainter toward the tip and seemingly joining the costa: cell R_1 over twice as long as wide: petiole of the media about twice as long as the small cell: cubitus forks slightly distad of base of the R-M crossvein, the latter rather long and much curved. Halteres yellow. Kingston, R. I. Collected in August by Professor John Barlow.

A specimen from the Valley of the Black Mts., N. C., collected by Mr. Wm. Beutenmuller in July, and a specimen from Knoxville, Tenn., differ only in lacking the bar over the base of the coxæ and in having thorax a little more deeply yellow.

5. *Neæmpheria indulgens* n. sp.

Female. Length 5 mm. Head yellow: palpi, ocellar spot and setæ black: flagellum of antennæ infuscated, intermediate joints about as long as wide, second joint of scape with a long slender black seta on dorsal surface. Thorax wholly yellow, mesonotum with 5 longitudinal lines of small black setæ besides the irregular lateral lines of longer setæ which extend to base of wing, humeri with a number, scutellum with 2 long setæ. Abdomen yellow, dorsum of second, third and fifth segments with large dark brown subtriangular spot: ovipositor yellow. Legs yellow: fore metatarsus about 0.85 times as long as the fore tibia; middle and hind tibiæ with short black setæ arranged in several longitudinal rows of 8 or 10 setæ in each; claws each with 2 basal teeth. Wings (fig. 960) hyaline, a brown spot covering the small cell and the R-M crossvein but not reaching the fork of the cubitus, a larger faint cloud posterior to Cu_2 and a subapical fascia from the tip of R_2 to the anterior branch of the cubitus, but leaving the tips of the costa, R_{4+5} and the media clear: veins yellowish brown; subcosta reaches the costa slightly distad of the tip of the cell R_1: the subcostal crossvein on the middle of the small cell which is but little longer than wide: petiole of the media is about half as long as Cu_1: the cubitus forks slightly proximad of the base of the crossvein: anal vein long but not reaching the margin. Halteres yellow. Taken in July at Montreal, Canada.

Male. Two specimens from Ithaca, N. Y., have indications of four ferruginous thoracic stripes, but are otherwise similar. The hypopygium is as shown in figure 128.

A specimen from Black Mts., N. C., taken by Mr. Beutenmuller, is similar to the Ithaca specimen but the subcostal crossvein is placed at the apex of the cell R_1.

6. *Neæmpheria maculipennis* Williston.

1896. *maculipennis* Williston, Trans. Ent. Soc. London. 262.

Male. Length 5 mm. Antennæ about as long as the head and thorax together; the basal joints light yellow, the remainder with a brownish tinge. Palpi brown; front and face yellow; mesonotum, except the lateral margins, light brown, with black hair and bristles; indistinctly striped; moderately shining. Pleura, coxæ and femora light yellow. Scutellum, except at its base, light yellow, and with two bristles on its margin. Abdomen light yellow, each segment with a large black or brown spot, not reaching the hind margin. Tibiæ and tarsi yellow, but appearing blackish from the abundant, short, black hair; front tarsi more than twice the length of their tibiæ. Wings nearly hyaline, with the following markings: the tip of the subcostal cell and the cell R_{2+3} beyond R_{2+3}, and the proximal end of the cell R_{4+5}, brown; a more distinct brown spot clouding the subcostal crossvein, the basal section of the radial sector, the base of the cell R_{4+5}, and, more diffusely, along the posterior branch of the media, to connect with a spot running from the cell R_{4+5} into the hindermost posterior cell; a smaller brownish spot in the axillary angle; costal and subcostal cells yellowish; costa produced beyond the tip of R_{4+5}; R_{2+3} situated a little beyond the furcation of the media. 1,000 ft., St. Vincent Isl., W. I.

7. *Neæmpheria illustris* n. sp.

Male and female. Length 5 mm. Resembles *N. balioptera* in possessing an elongate cell R_1, but differs in the position of the subcostal crossvein and in coloring; from *N. maculipennis* it differs in having the apex of the wing more widely brown.

Head yellow, ocellar spot and palpi black; antennæ yellow, intermediate joints little if any longer than broad, 2 or 3 black setæ at the apex of the second basal joint. Thorax yellow, mesonotum with 5 brown stripes, scutellum with a brown spot on the middle behind the suture, metanotum brown, setæ black, those on the humeri, at the base of the wing and the 2 on the scutellum most prominent. Abdomen yellow, the dorsum of segments 1, 3, 5 and 6 except at the incisures and a spot of greater or lesser extent at the base of each of segments 2 and 4, brown. The brown on the third and fifth extends to the lateral margins; hypopygium as figured (figs. 126, 127). Legs

yellow; setulæ of tibiæ and tarsi make these appear more dusky; setæ of middle and hind tibiæ shorter than diameter of these members; each claw with a tooth on the under side near the middle and 2 or 3 shorter tubercles near the base: fore metatarsus over 0.9 as long as the tibia in the male; subequal in the female. Wings (fig. 100) hyaline, veins brown; a brown cloud covers the subcostal crossvein and base of the radial sector; another cloud covers R_{2+3}, broadens posteriorly crossing the posterior radial cell, then follows the posterior branch of the media and merges into the brown which covers the entire apex of the wing from the tip of R_1 to beyond Cu_1; posterior to Cu_1 there is a faint indication of another cloud; the costa is distinctly produced beyond the apex of R_{4+5}; the subcostal crossvein joins R_1 opposite the apex of the subcosta and before the apex of the very oblique first section of the radial sector; the media forks distinctly proximad of R_{2+3}; the cubitus forks about opposite the base of the radial sector; anal vein distinct but incomplete. Halteres yellow. Ithaca, N. Y.

8. *Neæmpheria balioptera* Loew.

1869. *balioptera*, Loew. Berl. Ent. Zeitschr. XIII. 136.

Female. Length 0.2 mm. Yellowish or dusky yellowish; body pile black. Head a little darker; antennæ reddish yellow, apically blackish; palpi black. The posterior margins of the first abdominal segment with dark brown fascia and a large spot near each lateral posterior margin of segments 2, 3 and 4. In paler specimens the spots are pale brown. Hypopygium robust (fig. 120). Legs yellow, tibiæ somewhat darker, tarsi blackish, fore metatarsus $\frac{7}{8}$ as long as the tibia; tarsal claws each with 2 teeth. Wings (fig. 97) yellowish with a cinereous tinge, toward the costa more deeply yellowish; costa slightly produced beyond R_{4+5}; the subcostal crossvein is placed near the base of the cell R_1, this cell is large and longer than the petiole of the media; a fuscous spot extends from the subcosta, covering the subcostal crossvein, the basal section of the radial sector, the R-M crossvein and following the course of the petiole of the media; R_{2+3} is covered by a small fuscous spot; apex of the wing from the tip of R_1 to the tip of Cu_1 fuscous as well as the part behind Cu_2, apically somewhat more faint.

This species has been recorded from Illinois and New Jersey. I have seen specimens from Ithaca, N. Y., and Chicago, Ill.

12. Genus *Mycomya* Rondani.

Mycomya, Rondani, Dipt. Ital. Prodr. I. 194. 1856.
Sciophila, Meigen (part.) Syst. Beschr. I. 245. 30. 1818.
Sciophila, Winnertz. Verh. Zool.-bot. Ges. Wien. XIII. 707. 1863.

The name *Mycomya* is used here in the sense of *Sciophila* of Winnertz over which it has priority. *Neœmpheria* which I considered as a subgenus in the "Genera Insectorum" I here restore to its original position for reasons already mentioned.

Head small, flattened in front, placed low upon the thorax; eyes elongate oval, usually emarginate at the base of the antennæ; ocelli placed close together, the laterals large, the median very minute or wholly wanting; proboscis short, palpi incurved, 4 jointed, the first joint very small, the fourth longest; antennæ 2+14 jointed, the joints of the scape setose at the tip, flagellar joints cylindrical, pubescent. Thorax highly arched, ovate, scutellum small, semicircular in outline. Abdomen slender, with 7 visible segments, constricted at the base; somewhat clavate, particularly in the male; hypopygium rather small (figs. 132-147); ovipositor short, terminating in 2 small lamellæ (fig. 139). Coxæ long, setose; legs long and slender, femora ciliated on flexor surface; tibiæ with lateral setæ. Wing (figs. 101-106) microscopically setulose, somewhat projecting beyond the tip of the abdomen. The costa usually ends at the tip of the wing where it meets R_{4+5} but usually not produced beyond it; the subcosta may end in the costa, in R_1 or end free; the subcostal crossvein at or distad of the base of cell R_1; cubitus forks proximad of the media; the anal veins incomplete and usually rather short. The larvæ have been found in fungi and in decaying wood.

Table of Species.

Males.

a. Thorax and abdomen nearly wholly dark; western species.
  b. Subcosta ends in R_1; cubitus forks distad of the R-M crossvein. 1. *littoralis,* var. *frequens.* n. var.
  bb. Subcosta ends in the costa; cubitus forks proximad of the R-M crossvein.
    c. Middle coxæ with spurs; petiole of media about half as long as M_1. 4. *calcarata.*
    cc. Middle coxæ without spurs; petiole of media about six times as long as R-M crossvein. 5. *simplex.*

aa. Thorax or abdomen or both with considerable yellow.
b. Hypopygium with two slender, slightly curved, dorsal processes (fig. 147); fore metatarsus shorter than its tibia, no coxal spur; mesonotum vittate.
6. *Mycomya sp.*
bb. Hypopygium not as described above.
c. Subcosta does not end in the costa.
d. Subcosta ends in R_1. 1. *littoralis.*
dd. Subcosta ends free.
e. Dorsum of thorax black; posterior margin of the abdominal sclerites black. 2. *obtruncata.*
ee. Dorsum of thorax vittate; margins of abdominal sclerites yellow. 3. *sequax* n. sp.
cc. Subcosta ends in the costa.
d. Posterior margin of tergites distinctly brown or black; anterior part yellow.
e. Petiole of media equal or longer than M_2.
f. Dorsum of thorax with distinct black markings; fore metatarsus shorter than tibia; subcostal crossvein at the middle of the cell R_1.
g. Mesonotum with 2 oblique lines which meet at scutellum; a median line and 2 elongate lateral spots over the base of the wing. 7. *obliqua.*
gg. Mesonotum with 3 confluent or subconfluent dusky stripes. 8. *tantilla.*
ff. Mesonotum with faint markings.
9. *nigracauda.*
ee. Petiole of media shorter than M_2.
f. Middle coxæ without spurs; fore metatarsus shorter than its tibiæ; median vitta of thorax usually paler than the laterals.
10. *brevivittata.*
ff. Middle coxæ with spurs; fore metatarsus equal or longer than its tibia.
g. Dorsum of abdomen with longitudinal black stripe; fore metatarsus equal to tibia in length; subcostal crossvein proximad of middle of cell R_1; length 4.5 mm.; hypopygium as figured (fig. 135).
11. *marginalis* n. sp.

gg. Posterior margins of tergites black; fore metatarsus longer than its tibia; hypopygium as figured (figs. 132, 136).
12. *imitans* n. sp.

dd. Posterior margins of tergites yellow, or abdominal segments unicolored, yellow or brown.

e. Abdomen with 2 or 3 spots on each segment; petiole of media shorter than M_2.
13. *biseriata.*

ee. Abdomen not so marked.

f. Dorsum of abdomen with a median row of large spots which may be confluent, forming a dorsal stripe; middle coxæ with spurs; fore metatarsus equal or longer than the tibia.

g. Fore metatarsus 1-10 longer than the tibia; hypopygium as figured (fig. 137); length 6.5 mm. 14. *maxima* n. sp.

gg. Fore metatarsus subequal to tibia in length; hypopygium as figured (fig. 135); length 4.5 mm.
11. *marginalis* n. sp.

ff. Tergites each with a more or less yellow posterior margin; or wholly of one color.

g. Fore metatarsus is longer than the tibia.

h. Abdomen brown, sclerites faintly yellow margined posteriorly; length 4 mm.; hypopygium as figured (fig. 138); cell R_1 2.5 times as long as wide and half as long as the petiole of the media. 15. *sigma* n. sp.

hh. Abdomen not so marked.

i. Subcostal crossvein proximad of the middle of cell R_1; only the posterior margins of tergites yellow; length 6.5 mm. 14. *maxima* n. sp.

ii. Subcostal crossvein is near middle of the cell R_1; length 3.5 mm.; both anterior and posterior margins of tergites yellow. 17. *hirticollis.*

gg. Fore metatarsus shorter than its tibia.
h. Neither thorax nor abdomen with distinct dark markings; cubitus forks under or distad of the R-M crossvein; length 3 mm. St. Vincent Isl.
18. *meridionalis* n. n.
hh. Not as above.
i. Length 5 mm. or more.
j. Thorax and scutellum yellow; cubitus forks far before the base of the radial sector.
19. *flavohirta.*
jj. Thorax with three subconfluent black stripes; cubitus forks under the R-M crossvein.
20. *mendax* n. sp.
ii. Length 3.5 mm. or less.
j. Subcostal crossvein proximad of middle of cell R_1.
16. *appendiculata.*
jj. Subcostal crossvein at middle of cell R_1. 17. *hirticollis.*

Females.

a. Subcosta does not end in the costa.
b. Subcosta ends in a stump; petiole of the media is shorter than M_2; thorax yellow with dark brown stripes; cubitus forks under the R-M crossvein.
c. Length 6.5 mm. 14. *maxima* n. sp.
cc. Length 3.5 mm. 3. *sequax* n. sp.
bb. Subcosta ends upon R_1; petiole of the media is longer than M_2; length 3 to 4 mm.
c. Thorax and abdomen mainly dark. California.
1. *littoralis* var. *frequens* n. var.
cc. Thorax and abdomen largely yellow. 1. *littoralis.*
aa. Subcosta ends in the costa.
b. Posterior margin of each tergite black or brown.
c. Cubitus forks distad of the R-M crossvein; fore metatarsus shorter than the tibia; length 3 mm.
d. Subcostal crossvein near middle of small cell R_1.
8. *tantilla.*

dd. Subcostal crossvein near base of cell R_1.
21. *nugatoria* n. sp.

cc. Cubitus forks under or proximad of R-M crossvein.

d. Mesonotum with 5 elongate spots or stripes, the median and the oblique first laterals meeting in front of the scutellum; petiole of media is equal or greater than M_2. 7. *obliqua.*

dd. Mesonotum with 3 more or less distinct stripes; the subcostal crossvein at or distad of the middle of cell R_1.

e. Petiole of the media about 1.5 times as long as cell R_1; middle thoracic stripe subobsolete.
22. *onusta.*

ee. Petiole of the media about twice as long as the cell R_1; middle thoracic stripe distinct.
12. *imitans* n. sp.

bb. Posterior margin of each tergite yellow, or abdomen is uniformly colored.

c. Three elongate spots on each tergite. 13. *biseriata.*

cc. Tergites marked otherwise.

d. Fore metatarsus equal or shorter than its tibia.

e. Length 3.5 mm. 17. *hirticollis.*

ee. Length 5 to 6 mm.; petiole of media is shorter than M_2. 20. *mendax* n. sp. and varieties.

f. Cubitus forks distad of the R-M crossvein and the subcostal crossvein is placed proximad of the middle of cell R_1.
20. var. a. of *mendax* n. sp.

ff. Cubitus forks under or proximad of R-M crossvein, and subcostal crossvein is placed at or distad of the middle of cell R_1.

g. Fore metatarsus is 0.9 as long as its tibia; the cubitus forks under the R-M crossvein; the subcostal crossvein is near the middle of cell R_1. 20. *mendax* n. sp.

gg. Fore metatarsus is 0.8 as long as its tibia; the cubitus forks proximad of the R-M crossvein; the subcostal crossvein is distad of the middle of cell R_1.
20. var. b. of *mendax* n. sp.

dd. Fore metatarsus is longer than its tibia.

e. Thorax black with yellow humeri; petiole of media about 6 times as long as cell R_1; length 4 to 6 mm. 5. *simplex*.

ee. Thorax largely yellow.

f. Subcostal crossvein is placed proximad or at the middle of cell R_1.

g. Length 3.5 mm. "Both anterior and posterior margins of each tergite, pale." 17. *hirticollis*.

gg. Length 4 to 5.5 mm.

h. Fore metatarsus about 1-12 longer than its tibia.

i. Subcostal crossvein is placed at middle of cell R_1. 23. *recurva* n. sp.

ii. Subcostal crossvein proximad of middle of this cell. 23. *recurva* var. *chloratica* n. var.

h. Fore metatarsus over 1-5 longer than its tibia. 24. *incompta* n. sp.

ff. Subcostal crossvein is distad of the middle of the small cell R_1; "apex of R_{2+3} turned toward the base of wing"; length 6 mm.; Colorado. 25. *angulata*.

1. *Mycomya littoralis* Say.

1824. *littoralis*. Say, Long's Exp. St. Peter's River. App. 361. (*Sciophila*).

Male. Length 3.5 mm. Vertex fuscous, ocellar spot, black, eye margin and occiput subfuscous to yellowish; face, palpi, mouth parts and scape yellow; the flagellum fuscous, except sometimes 1 or 2 basal joints; third joint nearly twice as long as wide; antennal hairs pale, setæ of the head, black. Thorax yellow, 3 dark brown stripes on mesonotum, the laterals abbreviated anteriorly, the middle one prolonged both anteriorly and posteriorly; anterior margin of scutellum and a spot on metanotum, brownish; the 4 scutellar setæ and the setæ of the anterior and lateral margins of the thorax, black; the smaller setæ of the dorsum, arranged in 3 rows of 2 lines each, are also black, but the finer hairs on the dorsum and 2 longer ones on the posterior margin are pale yellow. Abdomen yellow, the dorsum

of the first and sixth in large part, and narrow posterior margins of the remaining segments dark brown, usually also a brown spot on the anterior margin which is more or less prolonged along the median line; abdominal hairs pale. Hypopygium (similar to fig. 144) yellow, much resembling that of *M. penicillata* Dzied.; the inferior forceps with broad margin and strongly ciliate; the superior forceps (fig. 145) widened spatulate, the margin with one long and slender seta and several shorter, stout, blunt spines, and arising from near the base a curved spatulate and setose process projecting laterally; the intermediate appendages are much prolonged, slender, doubly curved; the caudal margin of the ventral sclerite is bilobed and pectinate. The legs are yellow and quite slender, the fore metatarsus is over ¾ as long as the tibia; the larger setæ of hind tibiæ but little longer than the diameter of this member. Wings (fig. 101) hyaline, slightly yellow tinged; subcosta ends in R_1 usually proximad though sometimes distad of the middle of cell R_1; variable occasionally even in the two wings of the same individual, small cell about twice as long as broad measured along R_1; petiole of the media longer than M_2; R_{4+5} ends very slightly before the tip of the wing; cubitus forks distad of the R-M crossvein. Length of wing is 3 mm. and is 3 times as long as the fore metatarsus. Halteres yellow. Ithaca and Old Forge, N. Y.; Price Co., Wisconsin; July and August.

Female. Similar to the male but the wing is slightly larger and the ratio of fore metatarsus to tibia is smaller. In immature specimens the stripes on mesonotum may be pale brown, or the lateral stripe yellowish brown and the median stripe darker.

Var. *frequens* n. var.

Male and female. Similar to the typical form in structure of wing and legs but differs in having head including mouth parts, thorax (except humeral spot and a spot at base of the wings), and abdomen dark brown; coxæ yellowish brown; legs tinged with brown; and inner lobe of superior forceps crescent shape (fig. 144a, edge view).

Berkeley (Wheeler); Alum Rock Park, San Jose; (Aldrich); Felton, St. Cruz Mts. (J. C. Bradley); California, March, April, May.

2. *Mycomya obtruncata* Loew.

1869 *obtruncata,* Loew, Berl. Ent. Zeitschr. XIII. 139. (*Sciophila*).

Male. Length 3.3 mm. Head fuscous black, lower half of the face paler; antennæ fuscous black, scape as well as the basal joint of the flagellum yellowish; palpi yellowish. Thorax fuscous black, with black pile, humeri widely yellowish, the lateral margins whitish or pale yellowish; scutellum fuscous black; upper half of the pleura dusky yellowish, lower half fuscous. First, sixth and seventh abdominal segments wholly black, the remaining segments yellowish, except for the black apical fasciæ of each; hypopygium small, yellowish. Pile of the abdomen black. Coxæ and legs pale yellow, tarsi fuscous. Wings cinereous tinged, veins fuscous; subcostal vein ends free a little beyond the subcostal crossvein which is placed slightly proximad of the middle of the cell R_1; the petiole of the media and its fork subequal in length; the cubitus forks distad of the R-M crossvein. Length of wing 3.5 mm. Halteres pale. Recorded from District of Columbia.

3. *Mycomya sequax* n. sp.

Male. Length 3.5 mm. Slender; head and antennæ brown; ocellar spot black; occiput, face, palpi and base of antennæ yellow; with setæ black; intermediate antennal joints about 1.5 times as long as wide. Thorax yellow, the 3 dorsal stripes and metanotum pale brown with wide yellow lateral and posterior margins. Hairs pale. The last abdominal segment more prominent than the small and inconspicuous hypopygium (fig. 146) yellow, resembling that of *occultans* Winn., as figured by Dziedzicki. Legs long and slender, yellow, fore metatarsus over 1.25 times as long as its tibia; spur of intermediate coxæ slender and about half as long as the fore tibia; setæ of hind tibia not twice as long as the diameter of this member. Wings (fig. 103) hyaline, yellow tinged, large veins brownish yellow, subcosta ends in a stump a little beyond the subcostal crossvein which is placed very near the base of the cell R_1, the latter is large, over twice as long as wide; R_{4+5} ends at the tip of the wing; the petiole of the media is equal to M_2 in length, the cubitus forks slightly distad of the R-M crossvein; the wing is 3.5 mm. in length which is 1.7 times as long as the fore metatarsus. Halteres yellow.

Female. Similar to the male but the fore metatarsus is 1 1-6 times the tibia in length, and the subcostal crossvein is near the middle of the small cell R_1 which is not quite twice as long as wide; no coxal spurs. Both sexes from Ithaca, N. Y., taken in July.

4. *Mycomya calcarata* Coquillett.

1904. *calcarata,* Coquillett. Invertebrata Pacifica I. 19. (*Sciophila*).

Male. Length 4 mm. Black, the extreme base of third joint of antennæ, halteres, genitalia largely, femora, tibiæ and base of first joint of tarsi yellow; third joint of antennæ nearly 3 times as long as broad, the following joints longer than wide; body opaque, gray pruinose, mesonotum marked with 3 black vittæ, the middle one divided medially by a gray line, hairs and bristles of thorax black; middle coxæ bearing at apex of front side a forwardly directed, 2-pointed spur which is almost half as long as the coxæ; bristles of tibiæ shorter than the greatest diameter of the latter; fore metatarsus slightly shorter than its tibia; wings pubescent, hyaline, subcostal vein terminates near middle of cell R_1, the subcostal crossvein slightly before the middle of this cell, the latter about 1.5 times as long as broad, R_1 and R_{4+5} veins strongly bowed forward, peduncle of cell M_1 about half as long as M_1, cubitus forks slightly before R-M crossvein. California.

5. *Mycomya simplex* Coquillett.

1905. *simplex,* Coquillett, Journ. N. Y. Ent. Soc. XIII. 67 (*Sciophila*).

Male and female. Length 4 to 6 mm. Near *calcarata* but the middle coxæ are without spurs, etc. Black, the mouth parts, bases of antennæ, a humeral spot, base of venter, halteres, coxæ, femora, tibiæ, bases of tarsi and hind borders of abdominal segments of the female, yellow, hind coxæ usually marked with brown. Antennæ elongate, the joints beyond the second over twice as long as wide. Body opaque, densely gray pruinose, the hairs black. First joint of front tarsi subequal or slightly longer than the tibiæ. Wings hyaline, subcostal vein ends in costa near or beyond middle of cell R_1, petiole of media cell about 6 times as long as the small crossvein, cubitus forks slightly before the small crossvein. British Columbia, July and August.

6. *Mycomya* sp.

Male. Length about 3.5 mm. Head yellowish brown, occiput, face and palpi yellow; ocellar spot distinct, blackish; setæ black. Thorax yellow, 3 dorsal stripes dark brown, the lateral abbreviated anteriorly; scutellum and mesonotum pale brown; abdomen defective, tergites apparently mainly brown with yellow along lateral margin; hypopygium as figured (fig. 147). Coxæ yellow, middle pair without spur; fore metatarsus .55 times as long as its tibia. Antennæ, wings and middle and hind legs missing. A specimen taken by Professor Wheeler, in August, in Price Co., Wis.

7. *Mycomya obliqua* Say.

1824. *obliqua*, Say, Long's Exped. St. Peter's River, App. 363. (*Sciophila*).

Male. Length 3.5 mm. Head black, face, mouth parts and basal joints of antennæ yellow; flagellum fuscous. Thorax yellow with two oblique brown stripes which meet at the scutellar suture; a median stripe between these and produced to the collar usually paler brown, and two lateral darker brown stripes abbreviated anteriorly; scutellum except at the suture and dorsum of metanotum usually dark brown; a few fine pale hairs on the dorsum; setæ black. Abdomen yellow, the first, sixth and seventh tergites and the posterior third of each of the remaining ones black or dark brown; hairs pale. Hypopygium (fig. 133) yellow, resembling that of *M. incorum* Winn; superior forceps are broad, and with rounded margins, setose; the intermediate appendages are long and very slender, doubly sinuate, somewhat flattened, tapering at the apex and produced beyond the forceps; the caudal margin of the ventral sclerite is straight, strongly ciliate and with a small rounded protuberance on each lateral angle. The legs are yellow and quite slender, tarsi slightly darker; fore metatarsus is ¾ as long as its tibia, the larger setæ of the hind tibiæ are shorter than the diameter of the member. Wings (fig. 102) hyaline, slightly yellow tinged; subcosta ends in the costa proximad of the distal end of the small cell; subcostal crossvein is placed nearly at the middle of this cell, which is about twice as long as wide; R_{4+5} ends nearly at the tip of the wing; the petiole of the media is longer than M_2; the cubitus forks almost directly under the R-M crossvein. Length of wing is 3.5 mm., which is 3.5 times as long as the fore metatarsus. Halteres yellow.

Female. Like the male but the wing is about 3.75 times as long as the fore metatarsus. New York; Rhode Island; Massachusetts (Johnson, col.); New Hampshire; Montreal. July and August.

Two females from Wisconsin collected by Professor Wheeler differ only in having the petiole of media and M_2 subequal.

8. *Mycomya tantilla* Loew.

1869. *tantilla,* Loew. Berl. Ent. Zeitschr. XIII. 140 (*Sciophila*).

Male. Length 3 mm. Head fuscous, palpi, proboscis, scape and basal joints of flagellum yellow, remainder of flagellum fuscous; basal flagellar joints about 1.5 times as long as wide; antennal hairs pale, setæ of head black. Thorax yellow, dorsum dark brown or with three subconfluent stripes in immature specimens; scutellum slightly infuscated; metanotum subfuscous, the four scutellar setæ and setæ of the thorax are black; dorsum with a few fine pale hairs. Abdomen yellow, tergites each more or less widely margined with black or dark brown, in well colored specimens the dark color is produced forward along the median line to almost the front margin leaving only more or less triangular yellow patches on the sides, in immature specimens the dark color is confined to the posterior third of the segment; hairs of abdomen dusky. Hypopygium (figs. 140, 143) yellow, resembling that of *M. brunnea* Dzied.; large; the inferior sclerite (shown folded down in fig. 140a, and in profile in fig. 143) is large, with 2 stout spines on each lateral margin projecting laterad; the intermediate appendages are slender, lanceolate, not produced much beyond the end of the inferior margin; the latter has four blunt lobes; in addition there are on the inner surface a pair of slender cylindrical processes and a pair of four-tined forks. The legs are yellow, quite slender; the fore metatarsus is ¾ as long as the tibia, the larger setæ of the hind tibia are longer than the diameter of this member. Wings (fig. 105) hyaline, slightly tinged with yellow; subcosta ends in the costa opposite the distad end of the cell R_1; the subcostal crossvein is about at the middle of this cell which is not twice as long on anterior margin as wide; R_{4+5} ends before the tip of the wing and very slightly before end of costa; petiole of the media is longer than M_2; the cubitus forks slightly distad of the R-M crossvein. Length of the wing is 3 mm., which is

2.75 times the length of the fore metatarsus. Halteres yellow.

Female. Like the male but the wing is proportionately larger. S. D. (Aldrich, col.); Wyoming and Wisconsin (Wheeler, Col.). September. Recorded also from Nebraska.

9. *Mycomya nigricauda* Adams.

1903. *nigricauda*, Adams, Kas. Science Quart. II. 23. (*Sciophila*).

Male. Length 4 mm. Yellow, subshining; head black, base of antennæ and mouth-parts yellow, sparse pile black; thorax yellow, in places slightly tinged with brown, viewed from before slightly grayish pollinose, pile black, halteres yellow; abdomen yellow, apices of segments, last one wholly black, hypopygium yellow, pile light brown; legs yellow, tarsi, except base, fuscous; wings hyaline, larger veins brown, subcostal cross-vein near apex of subcostal vein and just before the middle of the cell R_1, first branch of media about as long as its prefurca, furcation of the cubitus takes place just beyond the small cross-vein. Colorado City, Colo., July.

10. *Mycomya brevitittata* Coquillett.

1905. *brevitittata*, Coquillett, Journ. N. Y. Ent. Soc. XIII. 67. (*Sciophila*).

Male. Length 3.5 to 4 mm. Head reddish brown, vertex dusky; ocellar spot black, distinctly marked; face, palpi, proboscis, scape and basal joints of flagellum yellow, remainder of flagellum brown; antennæ rather short, compressed, first flagellal joint about twice, the others but little longer than wide. Thorax yellow, subopaque, lateral stripes brown or black, abbreviated anteriorly and not meeting posteriorly; a brown spot over the base of the wing, a geminate reddish brown median stripe not reaching the scutellum, dorsum and sides of metanotum and some spots on pleura, brown; the four scutellar setæ, and the marginal setæ of mesonotum black and conspicuous; the fine pale hairs more numerous than in related species. Abdomen yellow, the posterior third or half of each tergite blackish, subshining, sixth and seventh segments wholly black. Hypopygium (fig. 134) yellow, resembling that of *M. lenis* Dzied., the two pairs of forceps and the intermediate appendages are all slender and not produced beyond the margin of the ventral sclerite; this sclerite is provided with a pair of lateral processes

each with about twelve stout setæ, and a median pair of slender palmate lobes each with six fingers which decrease in length outwardly. Legs yellow, slender; fore metatarsus about 0.8 as long as its tibia; setæ of hind tibia but little longer than the diameter of this member. Wings (fig. 104) hyaline, slightly smoky tinged, larger veins dusky yellow; subcosta ends in the costa before the middle of this cell; R_{4+5} ends slightly before the tip of the wing; petiole of the media about half as long as M_2; the cubitus forks proximad of the R-M crossvein. Length of wing is 3.5 mm., which is three times as long as the fore metatarsus. Halteres yellow. N. Y., Wis., Ill., May, July, August. The species was originally recorded from British Columbia.

11. *Mycomya marginalis* n. sp.

Male. Length 4.5 mm. Resembles *M. maxima* but differs in size and structure of the hypopygium. Head brown; face, palpi and base of antennæ yellow. Thorax yellow, the three wide stripes on mesonotum, lower margin of pleura, dark brown; scutellum yellowish brown; four scutellar setæ and setæ of mesonotum black; the finer hairs paler. Abdomen yellow; tergites each with a wide blackish longitudinal stripe, last segment wholly dark, hairs brownish. Hypopygium (fig. 135) somewhat resembles that of *M. maxima* but here the central "processus" is but feebly developed. Legs slender dusky yellow, fore metatarsus and tibia subequal, middle coxæ spurred; setæ of hind tibiæ about twice as long as the diameter of the member, hind coxæ brown on outer side. Wings like those of *M. maxima* but the subcosta ends in the costa a little proximad of the distal end of small cell. Length of wing is 4.5 mm., which is 2.5 times as long as the fore metatarsus. Halteres yellow. One specimen taken in July in the Selkirk Mts., B. C., by Mr. J. C. Bradley.

12 *Mycomya imitans* n. sp.

Male. Length 4 mm. Head and antennæ brownish; the basal joints of the latter, face, palpi, and in large part the occiput, yellow; ocellar spot black and sharply defined; intermediate antennal joints somewhat longer than wide, setæ of the head black. Thorax yellow, three dark brown dorsal stripes, the laterals converging but not meeting, nor quite reaching scutellum, abbreviated anteriorly; the geminate median stripe abbre-

viated posteriorly; metanotum yellowish brown; four scutellar bristles and setæ of the thorax black, finer hairs pale. Abdomen yellow, each tergite with dark brown posterior margin which is more or less produced forward in a dorsal line; sixth and seventh segments wholly dark; hairs pale. Hypopygium (figs. 132, 136) yellow, resembling that of *pulchella* Dzied., dorsally with a pair of doubly curved horn-like processes articulated at the base. Legs slender, yellow, fore metatarsus about 1⅛ times as long as the tibia; spur of middle coxæ sickle shaped, short, about ⅓ as long as the fore metatarsus; setæ of hind tibia not twice as long as the diameter of the member. Wings hyaline, yellow tinged; subcosta ends in the costa beyond the middle of the cell R_1, which is over twice as long as wide, the subcostal crossvein is near the middle of this cell; R_{4+5} ends at the tip of the wing; petiole of the media is about half as long as M_1; cubitus forks under or slightly proximad of the R-M crossvein. Length of wing is 4 mm., which is twice the length of the fore metatarsus. Halteres yellow.

Female. Like the male but the subcostal crossvein is distad of the middle of the cell R. and the coxal spurs are wanting. In immature specimens the brown markings of head, thorax and abdomen are less extended. Ithaca, N. Y.; Mass. and Wis. (Wheeler, col.); Selkirk Mts., B. C. (Bradley, col.); Kingston, R. I. (Barlow, col.). July and August

13. *Mycomya biseriata* Loew.

1860. *biseriata*, Loew, Berl. Ent. Zeitschr. XIII. 140. (*Sciophila*).

Male. Length 5.7 mm. Yellowish; vertex dusky. Thorax yellowish; dorsum with black pile; pleura with subfuscous spots. Abdomen with black pile; each segment excepting the first with a triangular fuscous black spot on each side which extends from the anterior nearly to the posterior margin. Legs pale yellow, tarsi more dusky. Wings uniformly tinged with cinereous yellow, veins dusky yellow; subcostal vein ends in the costa (in the left wing its apex is subobsolete in the type specimen); cell R_1 is large, the subcostal crossvein is placed at the middle of this cell; petiole of the media is shorter than the cell M_1 but nearly twice as long as cell R_1, cubitus forks under the base of the R-M crossvein. Recorded from the Red River, Canada.

An examination of the type shows that the posterior segments have 3 spots each, the middle spot becoming obsolete on the anterior segments.

Female. Length 5.5 mm. Head and face reddish yellow; scape and basal flagellar joints yellow, remaining joints more or less fuscous; basal flagellar joints over twice as long as wide; ocellar spot and setæ of the head black. Thorax yellow, 3 pale reddish brown dorsal stripes, the middle one divided; metanotum and lower part of pleura with brownish tinge. Setæ including the 4 of the scutellum, black, finer hairs pale. Abdomen yellow, each tergite with a large, black triangular spot on each side and an elongate median spot extending from the anterior nearly to the posterior margin thus forming a nearly continuous longitudinal stripe. Legs yellow, middle and hind coxæ with a large spot near the tip on outer side; tarsi infuscated; fore metatarsus about 0.85 as long as its tibia, setæ of the hind tibia less than twice as long as the diameter of the member. Wings hyaline, slightly cinereous, heavy veins yellowish brown; subcosta ends in the costa before the distal end of the cell R_1 which is about twice as long as wide; the subcostal crossvein is placed near the middle of this cell; R_{4+5} ends at the tip of the wing; the petiole of the media is about $\frac{5}{8}$ as long as M_2; the cubitus forks under or very slightly distad of the R-M crossvein; the wing is 5 mm. long, which is 3.3 times as long as the fore metatarsus. Halteres yellow. Two specimens from the Selkirk Mts., B. C., collected by Mr. J. C. Bradley in July.

14. *Mycomya maxima* n. sp.

Male. Length 6.5 mm. Head brown, occiput paler, face, palpi, scape, and base of first flagellar joint yellow; flagellum dark brown, intermediate joints about twice as long as wide; the two ocelli prominent; setæ black. Thorax yellow, three stripes on mesonotum dark brown, the middle one produced cephalad, the laterals abbreviated anteriorly but all three coalescent posteriorly; metanotum and two small spots over base of wing also brown; scutellum paler brown; setæ black, intermingled with very fine pale hairs; four black scutellar setæ. Abdomen yellow, each tergite with a dark brown or blackish spot extending from the anterior margin nearly to the posterior margin, widest at the middle; dorsum of the sixth and seventh

segments wholly black; hairs black. Hypopygium (fig. 137) dusky yellow, resembling that of *M. bicolor* Dzied, forceps slender, acuminate, the central "processus" truncate, with lateral setæ near the tip and projecting far beyond the superior forceps. Legs slender, dusky yellow, fore metatarsus 1.1 times as long as its tibia; each middle coxæ with a cephalad projecting sickle-shaped spur which is about 1-3 as long as the fore metatarsus; setæ of hind tibiæ little longer than the diameter of the member. Hind coxæ outwardly for the most part brown. Wings (fig. 106) hyaline, slightly cinereous tinged; subcosta ends in the costa opposite the distal end of the small cell; subcostal crossvein is before the middle of this cell, which is about twice as long as wide; R_{4+5} ends beyond the tip of the wing; petiole of the media is ¾ as long as M_2; cubitus forks proximad of the R-M crossvein. The wing is 6.5 mm. long, which is 2.1 times as long as the fore metatarsus. Halteres yellow. One specimen from Maine taken by Mr. Owen Bryant in August.

Female. A specimen taken at the same time and place differs as follows: lower margin of pleura is dark; the yellow of the abdominal tergites is confined to a posterior fascia, the fore metatarsus and tibia are subequal; coxal spurs wanting; subcosta interrupted at the tip; subcostal crossvein slightly distad of the middle of cell R_1; cubitus forks only slightly proximad of the R-M crossvein. Wing is three times as long as the fore metatarsus.

15. *Mycomya sigma* n. sp.

Male. Length 4 mm. Head, face, and antennæ brownish, the basal joints of the last and the palpi yellow; intermediate antennal joints but little longer than wide. Thorax yellow, the three dorsal stripes dark reddish brown, the middle one broad on anterior margin, tapering and not reaching the scutellum; the laterals abbreviately anteriorly and broadened posteriorly; metanotum and lower margins of pleura also brown; the two scutellar bristles and the setæ of mesonotum brown. Abdomen brown, posterior and lateral margin a little more yellowish, margins not sharply defined; hairs pale. Hypopygium (fig. 138) yellow; forceps short and slender, intermediate appendages lanceolate and acute and the "processus" consisting of a pair of slender, slightly clavate median lobes. Legs long and slender,

yellow; fore metatarsus 1 1-16 times the tibia in length, setæ of hind tibia but little longer than the diameter of the member. Wings hyaline, with a yellowish tinge; veins brownish yellow, subcosta ends in the costa about opposite the middle of the cell R_1 which is rather large, about 2.5 times as long as wide; the subcostal crossvein is proximad of the middle of this cell; the basal section of the radial sector and the R-M crossvein are subequal; R_{4+5} ends at the tip of the wing; petiole of the media is about 2-3 as long as M_2; cubitus forks distad of the R-M crossvein; the wing is 4 mm. in length, which is 2 1-6 times as long as the fore metatarsus. Halteres yellow. A single specimen taken in May by Mr. Wm. Beutenmuller in the Black Mts., N. C.

16. *Mycomya appendiculata* Loew.

1869. *appendiculata,* Loew. Berl. Ent. Zeitschr. XIII. 139. (*Sciophila*).

Male. Length 3.2 mm. Head and palpi yellowish, vertex dusky; antennæ fuscous black, the scape and first joint of flagellum yellow. Thorax pale yellowish, mesonotum somewhat darker; pile black. Abdomen fuscous black, the posterior margin of each tergite, yellowish; the penultimate segment wholly black or with subfuscous margin. Hypopygium small, yellow, with slender lateral appendages, black. Coxæ and legs pale yellow, tarsi fuscous black. Wings hyaline, cinereous tinged apically and posteriorly; cell R_{2+3} more deeply tinged; veins fuscous; subcostal vein, which is thin and pale basally, ends in the costa; cell R_1 small, the subcostal crossvein is placed proximad of the middle of this cell; petiole of the media over thrice as long as the cell R_1, but scarcely equaling the length of the cell itself; cubitus forks distad of the R-M crossvein. Halteres yellow. The species has been recorded from New York.

To the above may be added that the fore metatarsus is shorter than the tibia and the middle coxæ are provided with spurs.

17. *Mycomya hirticollis* Say.

1824. *hirticollis,* Say, Long's Exp. St. Peter's River. Appl. 362. (*Sciophila*).

Length 3.5 mm. Antennæ fuscous, the four basal joints yellow; head black, face, mouth and palpi pale yellowish. Mesonotum with traces of three stripes; pleura yellow with a brown

spot over the hind coxæ. Each tergite brown with both anterior and posterior margins yellow. Wing slightly cinereous tinged. Halteres pale yellowish. Legs yellow, tarsi dusky. Reported by Say from the Northwest Territory.

18. *Mycomya meridionalis* n. n.

1896. *diluta,* Williston, (preoc.) Trans. Ent. Soc. London. 263. (*Sciophila*).

Male. Length 3 mm. Reddish yellow: abdomen brown. Antennæ about as long as the head and thorax together, somewhat compressed: light brown, the basal joints yellow. Front and face brown or brownish-yellow, palpi brown. Thorax, coxæ and femora reddish or luteous yellow: mesonotum brownish-yellow, with black hairs and bristles. Abdomen brown or yellowish-brown, with black hairs. Tibiæ brown: tarsi blackish: front metatarsi a trifle shorter than their tibiæ: hind tarsi scarcely longer than the tibiæ. Wings tinged with brownish: the costal vein terminates at the tip of R_{4+5}: cell R_2 very short: furcation of the cubitus very nearly opposite the origin of the radial sector. St. Vincent Isl.

19. *Mycomya flavohirta* Coquillett.

1901. *flavohirta*, Coquillett. Proc. U. S. Nat. Mus. XXIII. 596. (*Sciophila*).

Male. Length 5 mm. Head black, the face and mouth parts yellow, first two joints of antennæ yellow, the remainder black, compressed, the third joint only slightly longer than broad: thorax and scutellum yellow, polished, the bristles and numerous, rather long hairs also yellow: abdomen polished, yellow, the bases of segments 2 to 5, the whole of the sixth, and apex of abdomen, black: legs yellow, the tarsi brownish: halteres yellow: wings hyaline, cell R_1 about twice as long as broad, cubitus forking far before base of the radial sector: petiole of media 2-7 as long as M_2: front tibiæ slightly longer than their tarsi; no coxal spur. N. H.

20. *Mycomya mendax* n. sp.

Male. Length 6 mm. Head black, face, palpi, and base of antennæ yellow, flagellum fuscous, intermediate joints over half again as long as wide gradually decreasing in length toward the apex. Thorax yellow, dorsum with 3 subconfluent black stripes, of which the laterals are anteriorly abbreviated: metanotum and

lower margin of pleura brownish; setæ black, fine hairs pale; 4 scutellar setæ black. Abdomen yellow, tergites black, excepting the wide posterior margins; hairs pale. Hypopygium (fig. 141) yellow with a black margin, resembling that of *M. ornata* Meig., superior forceps (fig. 142s) folded down in the figure, hidden by the large lobular intermediate appendages; the ventral sclerite with short lateral setose lobes (inferior forceps?) and having two strong mesad projecting spines; mesad of these is a pair of pectinate processes each with five or six teeth. Legs yellow, fore metatarsus about a twelfth shorter than the tibiæ; setæ of hind tibiæ about as long as the diameter of the member. Wings hyaline, yellowish tinged, larger veins yellowish brown; subcosta ends in the costa before the distal end of the cell R_1 which is twice as long as wide; subcostal crossvein near the middle of this cell; R_{4+5} ends at the apex of the wing; petiole of media is ¾ as long as M_2; cubitus forks under the R-M crossvein; anal vein strong; wing 5.5 mm. long, which is 2.5 times as long as the fore metatarsus. Halteres yellow.

Female. A female taken in cop. with the above differs in being paler (perhaps immature), having only traces of thoracic stripes; abdominal markings pale brown, confined to the basal half of the segments; wing twice as long as the fore metatarsus. One pair taken by Professor Aldrich at Juliaetta, Id. Also one specimen from Muir Woods, Marin Co., California, and another from Selkirk Mts., B. C., taken by Mr. J. C. Bradley.

Var. a. A female specimen from Moscow, Id., collected in June by Professor Aldrich and another collected in Muir Woods, California, by Mr. J. C. Bradley, differ in being rather darker, in having the cubitus fork distad of the R-M crossvein and the subcostal crossvein placed near the basal fourth of the cell R_1.

Var. b. A female specimen taken in the Sierra Morena Mts., California, by Mr. J. C. Bradley in April differs in having the fore metatarsus .8 as long as the tibia, the fork of the cubitus proximad of the R-M crossvein and the subcostal crossvein distad of the middle of the cell R_1. It is barely possible that this is the female of *M. calcarata* Coq.

21. *Mycomya nugatoria* n. sp.
nugatoria Wheeler, MS. (*Sciophila*).

Female. Length 3 mm. Face and 2 or 3 basal joints of the robust antennæ pale yellow; palpi and apical joints of antennæ

fuscous, the latter covered with white pubescence. Head back of the insertion of the antennæ opaque black. Thorax very convex; dorsum with scattered long black hairs, the center reddish from the confluence of obsolescent stripes. Scutellum short and broad, bearing 4 bristles. Abdomen dull pale yellow, clothed with black hairs; posterior margins of segments infuscated. Legs pale yellow: median coxa with a large fuscous spot at the apex: tibiæ apeparing darker than the femur because covered with denser black hairs. Tarsi infuscated towards their tips. Fore metatarsus 0.8 as long as the tibia: setæ of hind tibia no longer than the diameter of this member. Wing grayish hyaline, with yellowish veins: subcosta ends in the costa about opposite the distal end of the cell R_1, which is nearly twice as long as wide; subcostal crossvein is near the base of this cell; R_{4+5} ends before the tip of the wing; the petiole of the media is as long as M_2: the cubitus forks distad of the R-M crossvein; the wing is 3 mm. long, which is twice as long as the fore metatarsus. Milwaukee Co., Wis. (Prof. Wheeler, col.).

A female specimen from the Black Mts., N. C., taken in May by Mr. Wm. Beutenmuller differs in having dark thoracic stripes and tergites with darker posterior margins: the cell R_1 also is slightly shorter and more distinctly trapezoidal.

22. *Mycomya onusta* Loew.

1869. *onusta*, Loew, Berl. Ent. Zeitschr. XIII. 138. (*Sciopitila*).

Female. Length 3.7 mm. Yellowish, pilose, the setæ blackish, the hairs pale. Head yellowish, vertex dusky; scape pale yellow, flagellum fuscous black, the first joint of the latter sometimes pale yellow: palpi subfuscous. Mesonotum with two wide stripes, abbreviated anteriorly, and between them anteriorly may be seen the beginning of a subfuscous median stripe: disk of scutellum subfuscous: pleura with subfuscous spots. Apical half of each tergite fuscous black. Coxæ and legs pale yellow; tarsi fuscous. Wings uniformly cinereous, veins fuscous; subcostal vein which is paler and more slender than the other veins is thickened and darkened at the extremity and ends in the costa: cell R_1 is large, the subcostal crossvein is placed at the middle of this cell: petiole of the media is nearly 1.5 times as long as the cell R_1, and less than half as long as M_2: cubitus forks proximad of the R-M crossvein. Length of wing 3.8 mm. Recorded from the District of Columbia.

23. *Mycomya recurva* n. sp.

Female. Length 5 mm. Pale yellow; face, cheeks, palpi and 5 or 6 basal joints of antennæ rufous yellow, apical joints of antennæ fuscous; front and occiput dull brownish black, dusted with white. Thorax pale yellow, subopaque, appearing as if dusted with white; dorsum with a few sparse, rather long black hairs and 4 distinct reddish brown stripes. The inner pair is approximated, very narrow, beginning on the anterior edge of the dorsum, tapering posteriorly and terminating a short distance in front of the insertion of the scutellum; lateral bands broader, beginning a short distance from the anterior edge of the dorsum and terminating acutely in the posterior edge. Scutellum with pale fuscous disk, bearing 2 moderately long setæ. Pleura somewhat fuscous posteriorly. Metanotum sordid with fuscous. Ground color of abdomen inclining to sulphur yellow; basal 2-3 of the tergum of each segment pale fuscous; a black band runs down the median dorsal line interrupted at the pale edges of the segment. Venter and genitalia uniform pale yellow. Legs pale yellow, lacking the whitish dust of the thorax; posterior coxæ each with an elongate fuscous spot; all the femora at their point of insertion very narrowly but distinctly edged with black; hind tibiæ with a row of about 7 almost equidistant spines on their outer faces. Fore metatarsus less than 1-12 longer than the tibia; setæ of the hind tibia nearly twice as long as the diameter of this member. Wing grayish hyaline, lutescent along the costal margin; subcosta ends in the costa before the distal end of cell R_1 which is about twice as long as wide; subcostal crossvein is at the middle of this cell; R_{4+5} ends at the tip of the wing; the petiole of the media is 0.7 as long as M_2; the cubitus forks slightly proximad of the R-M crossvein; the wing is 5 mm. long, which is 2.3 times as long as the fore metatarsus. Wisconsin (W. M. Wheeler, col.).

Another female specimen from this locality differs in having 3 more or less confluent spots on each tergite, forming a wide basal fascia with tridentate margin.

Var. *chloratica* n. var. Wheeler MS. Subcostal crossvein is situated proximad of the middle of the cell R_1; subcosta ends in the costa beyond the middle of the cell R_1 which is not twice as long as wide. Milwaukee Co., Wisconsin (W. M. Wheeler, col.).

24. *Mycomya incompta* n. sp.

Female. Length 4.5 to 5 mm. Head black, lower part of face, palpi, scape, and under side of first flagellar joint, yellow; intermediate flagellar joints about twice as long as wide with whitish pubescence; setæ of the head black. Thorax yellow, the 3 subconfluent dorsal stripes, scutellum, metanotum, and lower margin of pleura brown; setæ including those of the scutellum black. Abdomen yellow; the tergites brown with wide yellow posterior margins; hairs pale. Legs yellow, tibiæ and tarsi appear darker; the fore metatarsus about ¼ longer than the tibia; setæ of hind tibia about twice as long as the diameter of the member. Wings hyaline, cinereous tinged: subcosta ends in the costa nearly opposite the distal end of cell R_1 which is about twice as long as wide: the subcostal crossvein is placed very slightly distad of the middle of this cell: R_{4+5} ends beyond the tip of the wing: the petiole of the media is ¾ as long as M_2: the cubitus forks proximad of the R-M crossvein: the wing is 4 mm. in length, which is 2 1-7 times as long as the fore metatarsus. Halteres yellow.

Two specimens taken by Mr. J. C. Bradley in the Selkirk Mts. in August; one from Ithaca, N. Y.: and one from Capen, Maine. (Johnson, col.).

25. *Mycomya angulata* Adams.

1903. *angulata*, Adams. Kas. Univ. Science Bul. II. 22. (*Sciophila*).

Female. Length 6 mm. Yellow, subshining: head black, anterior part of front, base of antennæ, face and mouth-parts yellow: thorax yellow, mesonotum with 3 subcoalesced fuscous fasciæ, the middle one abbreviated behind, the lateral ones in front, pile, rather long and yellow, large spot on the pleura above middle coxæ brown: abdomen yellow, base of segments brown, pile black: legs light yellow, anterior tibiæ shorter than their tarsi: tips of tarsi fuscous: wings grayish hyaline, cell R_1 twice as long as broad, R_{2+3} angulate, its apex turned towards base of wing, subcostal crossvein slightly beyond middle of cell R_1. Manitou Park, Colo., August. It is near *S. flavohirta* Coq., but differs in the markings of the thorax, length of anterior tibiæ, and the angulated R_{2+3}.

ADDENDA.

Monoclona furcata n. sp.

Resembles *elegantula* in coloring but differs in the form of its hypopygium, the slightly greater length of the fore metatarsus relative to its tibia, and in the relative positions of apices of Sc, R_1 and R_{4+5}.

Male. Length 4 mm. Head black; palpi, face, scape of antenna and the 2 basal joints of flagellum yellow, the remaining flagellar joints fuscous. Thorax yellow, the mesonotum with 3 blackish stripes, metanotum, some spots on the pleura and the sternum more or less infuscated; hairs pale. Each abdominal tergite largely brownish, yellowish at the incisures, venter yellow; hypopygium dark brown, each limb of the forceps with 2 strong hooks united to a broad base to which is attached a very slender fishhook-like process projecting mesad. Legs yellow, tarsi somewhat darker; fore metatarsus over 0.95, the second fore tarsal joint over half as long as the fore tibia; tarsal claws each with a strong tooth at the base. Wings yellowish hyaline, veins dusky yellow; the small cell shorter than wide; the distance from the apex of Sc_1 to R_1 is over 2.5 times the distance from R_1 to R_{4+5}; in *elegantula* these distances are to each other as 2 to 1. Stem of the halteres yellow, the elongate knob black.

A single specimen taken at Orono, Maine, May 26, 1910.

Mycomya maxima.

Female. A specimen of this species taken in Orono, Maine, June, 1910, resembles the male described on page 179 in wing venation, the subcosta ending in the costa. The dorsal mark on each tergite is rather narrower than in the previously described specimens. I am now inclined to think that the female described before is abnormal in venation. In the table given on page 169 this species will fall into the couplet with *mendax*, from which it may be distinguished by its relatively longer fore metatarsus.

LEG MEASUREMENTS.

These tables give the relative measurements of the joints of the legs, the fore tibia (T) being taken as unity.

Name.	Hind Leg.							Middle Leg.							Fore Leg.						
	5	4	3	2	1	T	F	5	4	3	2	1	T	F	5	4	3	2	1	T	F
Monoclona elegantula, male	19	21	24	32	90	180	152	18	21	29	39	94	116	130	16	26	35	48	87	100	94
Eudicrana obumbrata, male	20	26	41	51	100	177	115	18	28	44	54	113	136	92	25	36	56	67	136	100	80
Tetragoneura nitida, male	27	32	38	47	114	237	174	–	–	30	33	93	134	150	25	27	30	33	67	100	110
Sciophila quadratula var. a. female	12	17	27	44	97	154	116	12	17	27	45	89	117	86	16	23	36	54	95	100	70
Sciophila glabana, male	12	19	27	44	91	152	108	–	–	–	–	–	112	77	15	27	37	60	98	100	72
Sciophila nugax, male	16	26	29	32	97	184	139	13	16	26	42	94	139	120	10	19	35	50	100	100	102
Sciophila habilis, male	14	22	28	39	89	186	148	14	19	28	42	86	128	120	17	25	44	50	95	100	100
Sciophila hebes, male	18	23	26	41	94	188	142	18	23	28	46	91	130	124	18	23	35	53	97	100	102
Sciophila impar, male	14	17	25	43	88	170	128	15	18	28	43	82	124	102	17	20	31	49	85	100	92
Sciophila severa, male	15	18	24	42	84	159	135	15	18	21	42	81	126	114	15	19	33	54	90	100	90
Sciophila pallipes, male	17	19	26	42	112	164	130	14	19	28	44	86	124	104	14	23	35	44	93	100	86
Paratinia recurva, male	12	15	16	26	80	146	93	9	14	18	29	77	116	70	12	16	22	32	91	100	69
Polylepta obediens, male	14	17	31	48	84	152	100	12	19	33	48	81	119	78	–	–	–	–	–	–	–
Polylepta obediens, female	14	17	28	50	84	157	110	12	19	33	48	83	131	83	17	27	43	64	114	100	71
Polylepta nigellus, male	–	–	–	–	–	–	–	17	22	39	50	92	111	104	14	22	31	42	70	100	92
Dziedzickia pullata, male	13	17	21	30	93	171	129	12	18	21	33	93	121	87	15	24	27	42	75	100	75
Diomonus pulcher, male	22	27	33	44	106	195	136	–	22	36	50	114	136	100	–	33	42	64	140	100	86
Diomonus pulcher, female	–	–	–	–	111	180	150	18	21	36	54	114	135	108	–	–	42	60	123	100	111
Diomonus bifasciata, male	–	–	–	–	–	–	–	–	–	–	–	–	–	–	23	27	42	63	148	100	84
Diomonus magnificus, male	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	134	100	87
Diomonus magnificus, female	21	25	43	50	129	204	161	21	28	39	45	125	139	100	21	39	46	61	140	100	90
Neoempheria macularis, male	15	20	27	40	94	169	106	15	23	30	40	95	131	106	15	27	37	50	95	100	95
Neoempheria macularis, female	14	19	28	46	104	167	119	17	20	28	42	106	123	72	–	–	36	52	100	100	77
Neoempheria nepticula	–	–	–	–	–	–	–	–	–	–	–	–	–	–	25	37	51	67	100	100	80
Neoempheria indulgens, male	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19	25	35	57	85	100	109
Neoempheria indulgens, female	–	–	–	–	–	140	118	23	26	32	40	92	138	124	20	28	37	60	85	100	90
Neoempheria impatiens, female	–	–	–	–	–	225	174	23	31	43	53	116	168	147	25	37	53	69	98	100	98
Neoempheria illustris, male	17	21	25	40	92	170	118	17	18	29	39	95	135	101	20	24	37	49	92	100	68
Neoempheria illustris, female	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	26	42	55	97	100	71

Name.	Hind Leg.							Middle Leg.							Fore Leg.						
	5	4	3	2	1	T	F	5	4	3	2	1	T	F	5	4	3	2	1	T	F
Neoempheria bulioptera, male	18	21	32	15	96	168	136	18	21	33	38	87	142	118	20	23	34	44	87	100	87
Mycomya sequax, male	13	16	25	15	108	169	122	15	19	29	51	102	122	86	16	25	45	76	133	100	76
Mycomya sequax, female	13	17	24	13	102	161	118	15	19	28	50	102	133	82	17	24	41	69	116	100	74
Mycomya limitans, male	12	15	19	38	91	150	113	13	16	25	44	85	121	83	21	26	38	57	112	100	72
Mycomya limitans, female	11	14	19	36	85	141	104	13	16	27	44	88	117	78	16	24	35	56	110	100	72
Mycomya marginalis, male	14	16	25	41	112	168	106	15	18	29	48	97	126	89	–	–	–	60	100	100	81
Mycomya littoralis, male	15	17	24	39	87	152	122	15	17	30	48	83	130	100	17	26	41	52	78	100	78
Mycomya littoralis, female	15	17	22	35	81	148	112	17	20	28	44	74	118	92	18	28	41	52	74	100	81
Mycomya maxima, male	13	17	25	47	115	169	102	15	19	27	50	101	140	94	–	25	44	69	110	100	68
Mycomya maxima, female	17	20	33	50	126	186	116		23	33	50	93	130	106	20	28	42	62	100	100	
Mycomya sigma, male	–						–	15	19	29	49	98	124	85	17	29	42	59	102	100	75
Mycomya tantilla, male	10	12	20	28	84	140	100	12	14	22	46	78	118	80	18	20	28	44	74	100	70
Mycomya obliqua, male	15	18	26	41	92	159	126	18	20	33	44	82	126	100	23	28	43	56	77	100	85
Mycomya obliqua, female	15	17	25	41	102	171	126	18	22	33	46	90	132	110	24	32	44	54	79	100	93
Mycomya brevivittata, male	12	14	19	28	85	159	131	14	17	24	36	78	119	119	15	18	29	41	79	100	86
Mycomya mendax, male	15	18	25	42	100	163	111	15	22	29	51	92	113	88	20	32	43	62	92	100	77
Mycomya mendax, female	13	16	23	39	91	150	100	14	18	29	44	87	116	85	17	27	42	56	93	100	80
Mycomya mendax, female, var. a	12	14	28	46	98	161	116	12	18	31	46	89	123	88	15	28	42	58	92	100	74
Mycomya mendax, female, var. b	13	16	25	38	93	160	112	14	18	24	41	90	122	96	18	21	32	48	80	100	84
Mycomya incompta, female	11	14	27	41	114	172	111	11	19	31	49	106	138	97	15	28	45	70	126	100	93
Mycomya biseriata, female	18	23	33	49	106	167	130	19	25	35	47	86	123	105	24	32	40	54	84	100	97
Mycomya nugatoria, female	14	16	22	33	81	167	–	14	16	23	41	81	127	–	22	27	33	51	81	100	90
Mycomya recurva, female	15	22	29	47	105	168	118	18	22	33	55	102	127	96	22	31	47	73	104	100	73
Mycomya recurva, female, var. chlorantica	11	18	28	48	108	171	119	–	–	–	–	–	125	85	21	30	46	69	104	100	75

Plate.

Fig. 83. Eudicrana obumbrata.
" 84. Monoclona elegantula.
" 85. Tetragoneura nitida.
" 86. Sciophila (Lasiosoma).
" 87. Paratinia recurva.
" 88. Polylepta obediens.
" 89. " nigellus.
" 90. " leptogaster (after Winnertz).
" 91. Empalia (after Winnertz).
" 92. Dziedzickia pullata.
" 93. Hadroneura (after Lundström).
" 94. Diomonus.

Plate.

Fig. 95. Neœmpheria nepticula.
" 96. " impatiens.
" 97. " balioptera.
" 98. " macularis.
" 99. " indulgens.
" 100. " illustris.
" 101. Mycomya littoralis.
" 102. " obliqua.
" 103. " sequax.
" 104. " brevivittata.
" 105. " tantilla.
" 106. " maxima.

Plate.

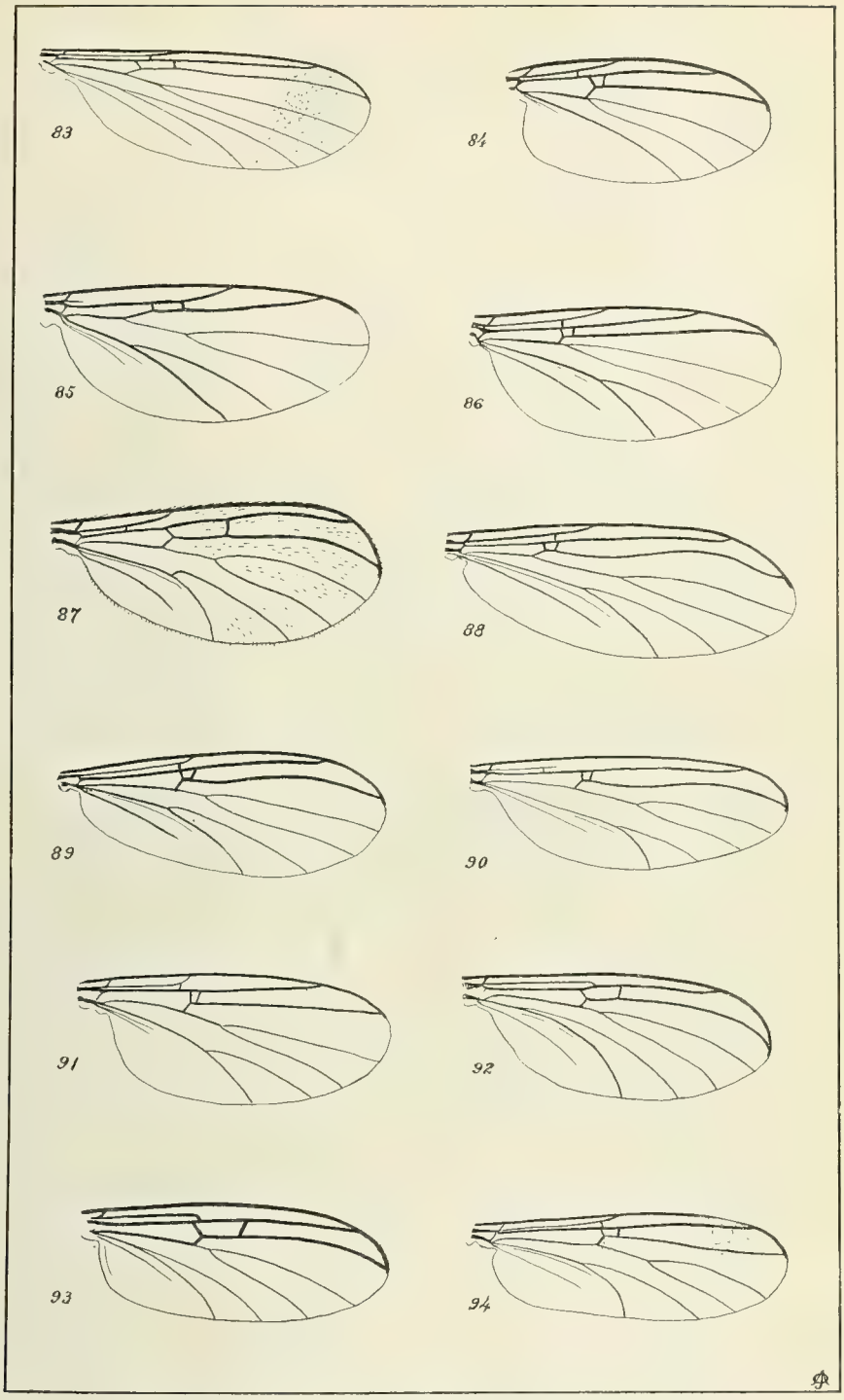
Hypopygia.

Fig. 107. Monoclona elegantula. One limb of forceps. x 200.
" 108. Tetragoneura nitida. Dorsal aspect. x 200.
" 109. Sciophila (Lasiosoma) habilis. Dorsal aspect. x 200.
" 110. " " glabana. Ventral aspect. x 100.
" 111. Eudicrana obumbrata. x 100.
" 112. Sciophila (Lasiosoma) severa. Dorsal aspect. x 200.
" 113. " " hebes. Dorsal aspect. x 200.
" 114. Diomonus magnificus. One limb of inferior forceps. x 100.
" 115. Sciophila (Lasiosoma) nugax. Dorsal aspect. x 200.
" 116. " " impar. Mesal aspect. x 200.

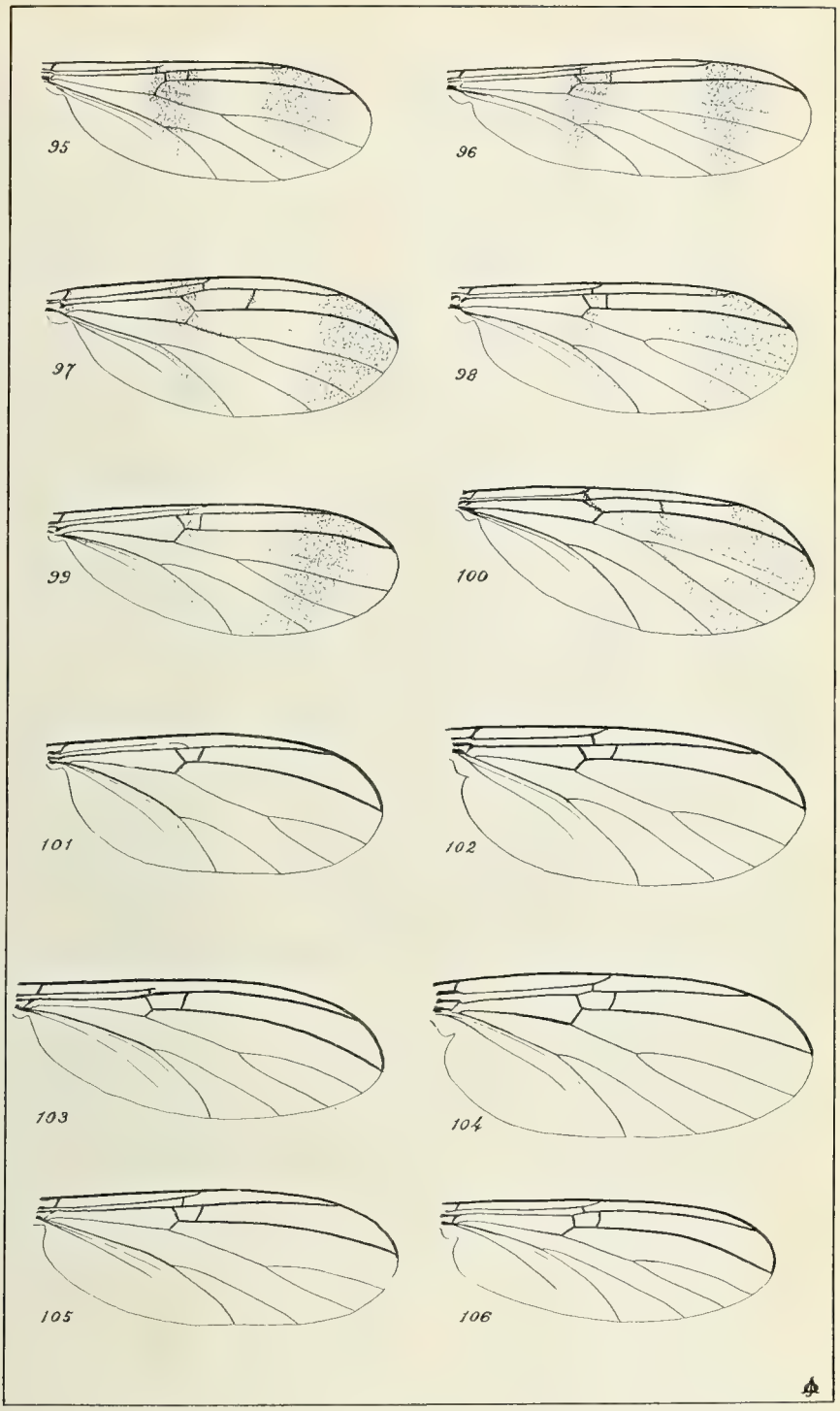
Fig. 117. Sciophila (Lasiosoma) novata. Ventral aspect. x 100.
" 118. Polylepta obediens. Ventral aspect. x 200.
" 119. Sciophila (Lasiosoma) novata. Dorsal aspect. x 100.
" 120. Dziedzickia pullata. Dorsal aspect. x 100.
" 121. Polylepta nigellus. Ventral aspect. x 100.
" 122. Sciophila (Lasiosoma) glabana. Ventral aspect of dorsal sclerite. x 200.
" 123. Diomonus bifasciatus. Ventral aspect. x 100.
" 124. Paratinia recurva. Dorsal aspect. x 200.
" 125. Diomonus pulcher. Ventral aspect. x 100.

Plate.

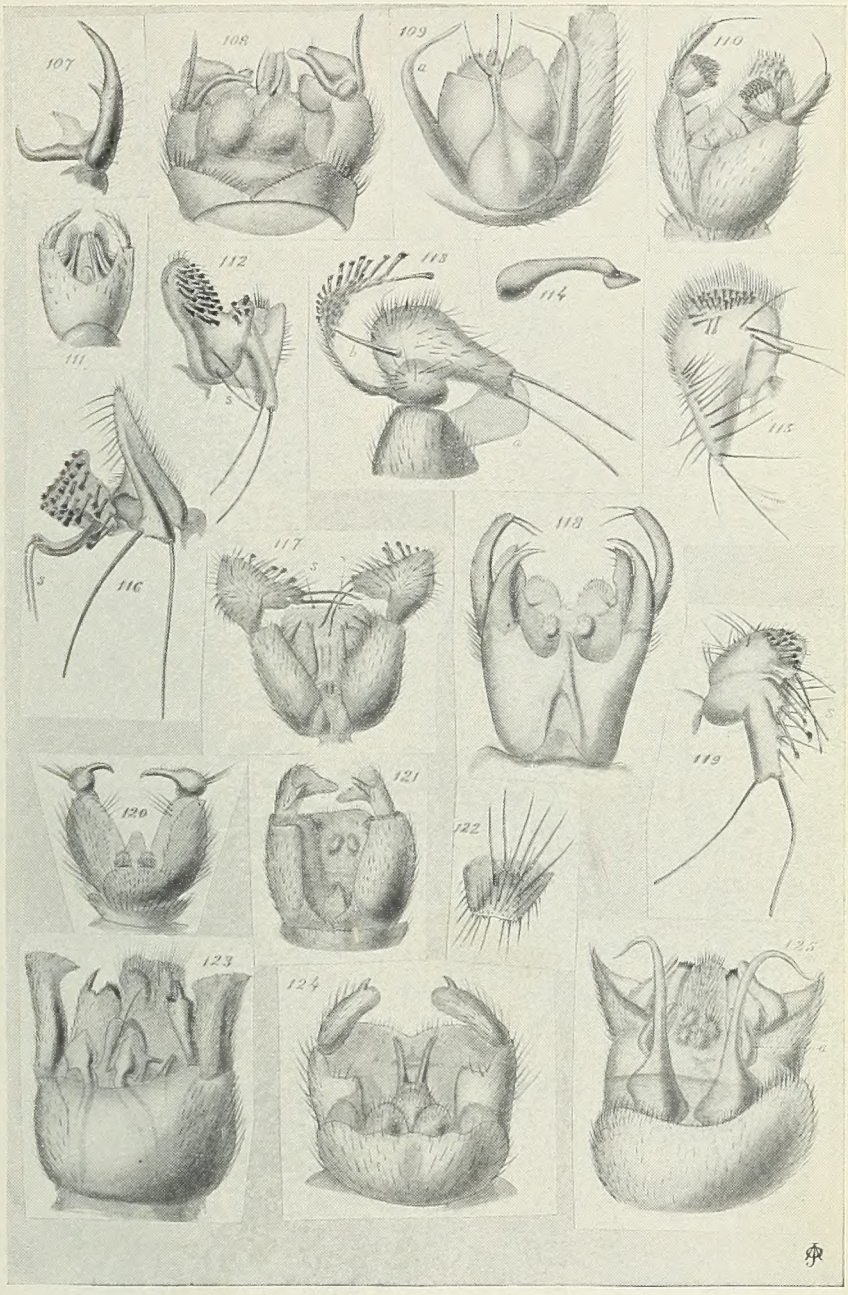
Fig. 126. Neœmpheria illustris. Dorsal aspect. x 85.
" 127. " " Lateral aspect, limb of inferior forceps. x 85.
" 128. " indulgens. Ventral aspect. x 85.
" 129. " balioptera. Oblique lateral aspect. x 35.
" 130. " macularis. Dorsal aspect. x 110.
" 131. " impatiens (ovipositor). Lateral aspect. x 65.
" 132. Mycomya imitans. Lateral aspect. x 65.
" 133. " obliqua. Dorsal aspect. x 65.
" 134. " brevivittata. Dorsal aspect. x 65.
" 135. " marginalis. Ventral aspect. x 65.
" 136. " imitans. Dorsal aspect. x 65.
" 137. " maxima. Dorsal aspect. x 65.
" 138. " sigma. Lateral aspect. x 35.
" 139. " biseriata (ovipositor). Lateral aspect. x 35
" 140. " tantilla. Open. x 65.
" 141. " mendax. Dorsal aspect. x 35.
" 142. " " Limb of superior forceps (s) and of intermediate appendage. (i) x 110.
" 143. " tantilla. Lateral aspect of ventral sclerite. x 65.
" 144. " littoralis, var. frequens. Dorsal aspect. x 35.
" 145. " " Superior forceps. x 110.
" 146. " sequax. Dorsal aspect. x 85.
" 147. " sp. Lateral aspect. x 65.



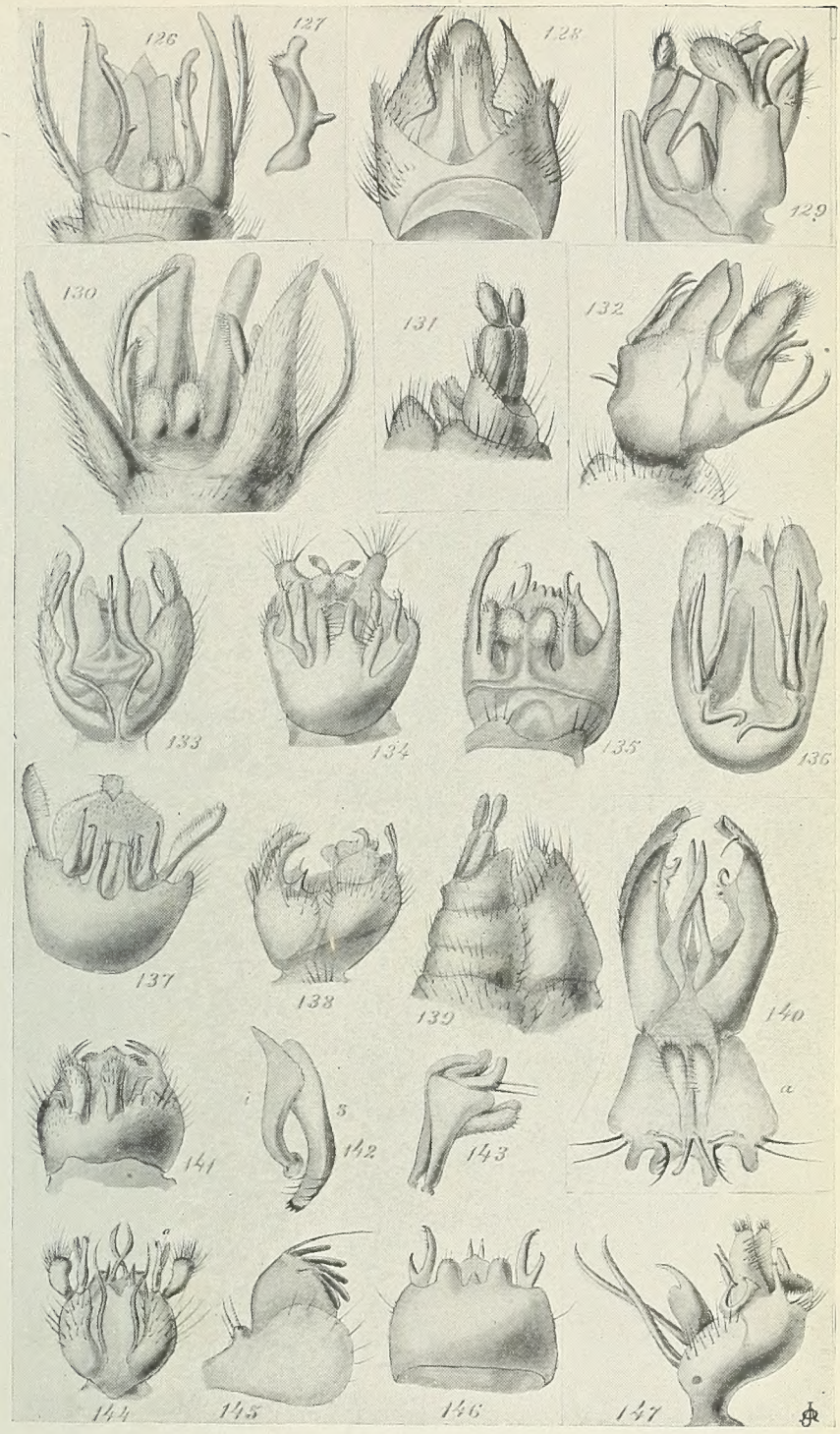
83, Eudicrana; 84, Monoclona; 85, Tetragoneura; 86, Sciophila (*Lasiosoma*); 87, Paratinia; 88-90, Polylepta; 91, Empalia; 92, Dziedzickia; 93, Hadroneura; 94, Diomonus.



95-100, Neoempheria. 101-106, Mycomya.



107, Monoclona; 108, Tetragoneura; 109, 110, 112, 113, 115, 116, 117, 119, 122, Sciophila *(Lasiosoma)*; 111, Eudicrana; 114, Diomonus; 118, 121, Polylepta; 120, Dziedzickia; 123, 125, Diomonus; 124, Paratinia.



126-131, Neoempheria. 132-147, Mycomya.